

**IN THE UNITED STATES BANKRUPTCY COURT
FOR THE DISTRICT OF DELAWARE**

)	
)	Chapter 11
)	Case No. 01-01139 (JKF)
In re: W.R. GRACE & CO., et al.,)	(Jointly Administered)
)	
Debtors.)	
)	
)	

EXHIBIT B

**COMPENDIUM OF CLAIMANT STATE OF CALIFORNIA,
DEPARTMENT OF GENERAL SERVICES' MVA, INC. REPORTS**

**HAHN & HESSEN LLP
Attorneys for Claimant
State of California, Department of General Services
488 Madison Avenue
New York, New York 10022
(212) 478-7200**

Asbestos Constituent Analysis

MVA Project No. 5394

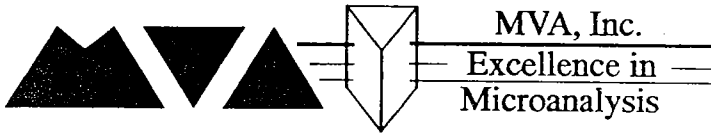
W.R. Grace Claim #10648

DGS Claim #1011585

**Building Address:
28 Civic Center Plaza, Santa Ana**

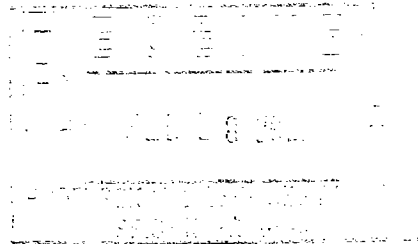
Prepared by:

**Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, 4th Floor
West Sacramento, CA 95605**



27 February 2003

Mr. Dan Hood, Project Manager
Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, Suite 4-430
West Sacramento, CA 95605



Re: Asbestos Constituent Analysis, Contract No. 3056115; MVA Project No. 5394

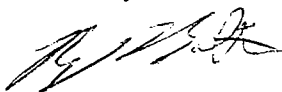
Dear Mr. Hood:

Enclosed is our report for product formula matching conducted on thirteen (13) samples of acoustical plaster collected from various buildings. In three samples we found no asbestos (two from 120 S. Spring Street and one from 2501 Harbor Blvd, Costa Mesa, Building 3234). Two samples had compositions inconsistent with any US Gypsum or W.R. Grace product (the sample labeled DSA 3671 and the sample from 28 Civic Ctr. Plaza, Santa Ana). One sample from 2501 Harbor Blvd., Costa Mesa, Bldg. 3265 had several layers and we were unable to unambiguously separate them for constituent analysis.

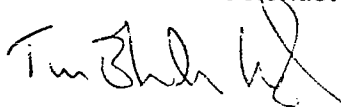
One sample from 2501 Harbor Blvd., Costa Mesa, Bldg. 3265 was a positive match for W.R. Grace's "Zonolite Acoustical Plastic." The remaining samples were a positive match for W.R. Grace's MonoKote (MK-3).

Thank you for consulting MVA, Inc. Please contact us if you have any questions.

Sincerely,



Randy Boltin
Senior Research Scientist



Tim B. Vander Wood, Ph.D.
Executive Director

\\Leslie\\mva_data\\PROJECTS\\Proj5300\\5394\\rpt022703_5394.doc

Report of Results: MVA5394

**Constituent Analysis
Various Buildings**

Prepared for:

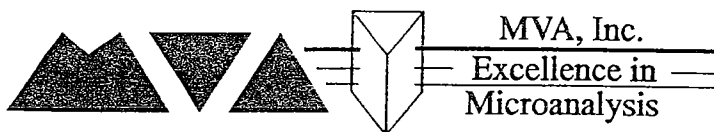
**Mr. Dan Hood, Project Manager
Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, Suite 4-430
West Sacramento, CA 95605**

Prepared by:

**MVA, Inc.
5500 Oakbrook Parkway, Suite 200
Norcross, GA 30093**

27 February 2003

\\Leslie\mva_data\PROJECTS\Proj5300\5394\rpt022703_5394.doc



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Report of Results: MVA5394

Constituent Analysis Various Buildings

Introduction

This report contains the analytical results and their interpretation for thirteen samples of suspected asbestos containing building materials from various buildings that were sent to MVA, Inc. under Agreement #3056115. The samples were first examined by polarized light microscopy (PLM) including microchemical tests. If necessary, the samples were further analyzed by scanning electron microscopy (SEM) combined with energy dispersive x-ray spectrometry (EDS), and by analytical electron microscopy (AEM) utilizing EDS and/or selected area electron diffraction (SAED). Wet chemistry was also performed on certain samples to determine a soluble weight percent. The results of all analyses and a data interpretation sheet for the samples are included as an appendix to this report.

Product formula matches were derived from comparison between determined sample composition and available product formulas. In any case where more than one product formula matched the determined composition, each match was noted. If no available product formula matched the determined sample composition, a 'no match' was indicated.

Results

The results of product formula matching for the samples are found in Table 1. The data on which the matches rely are included on the Data Interpretation page in the appendix.

Table 1: Summary of Results**MVA Project No. 5394****Group 1****Product Formula(s) Matched:** No Asbestos Detected

Client Sample ID	MVA Sample ID
120-1-01 (120 S. Spring St., LA)	MVA5394-N0034
120-2-03 (120 S. Spring St., LA)	MVA5394-N0036
3277-2-05 (2501 Harbor Blvd. Costa Mesa)	MVA5394-N0046

Group 2**Product Formula(s) Matched:** No Match

Client Sample ID	MVA Sample ID
DSA 3671-FP-1803-01 28-2-03 (28 Civic Center Plaza, Santa Ana)	MVA5394-N0030
3265-1-01 (2501 Harbor Blvd. Costa Mesa)	MVA5394-N0040
	MVA5394-N0042

Group 3**Product Formula(s) Matched:** Zonolite Acoustical Plastic

Client Sample ID	MVA Sample ID
3234-1-3 (2501 Harbor Blvd., Costa Mesa)	MVA5394-N0044

Group 4**Product Formula(s) Matched:** MonoKote (MK3)

Client Sample ID	MVA Sample ID
34-1-8-03-FP-1 (901 Stockton State Building)	MVA5394-N0022
969-1-8-FP-03-1 (7650 S. Newcastle Rd. Bldg. 969)	MVA5394-N0024
969-1-8-03-AT-1 (7650 S. Newcastle Rd. Bldg. 969)	MVA5394-N0026
1023-1-8-03-1 (7650 S. Newcastle Rd. Bldg. 969)	MVA5394-N0028
DSA 5-FP-1803-01	MVA5394-N0032
28-1-01 (28 Civic Center Plaza, Santa Ana)	MVA5394-N0038

MVA, Inc.
Data Interpretation

Group: 4

Sample ID: MVA5394-N0022, -N0024, -N0026, -N0028, -N0032, -N0038

Project: State of California

Location: Various

Type: N/A

Construction Date: Not Provided

Product Formula Matched: "Monokote (MK3)"

Manufacturer: W.R. Grace

Constituent Identified	Estimated Weight Percent (Avg)*
Chrysotile	~11%
Vermiculite	~34%
Gypsum including Limestone/ Precipitated Carbonate	~55%

Comments: Minor limestone/precipitated carbonate is included with gypsum.
*Estimated weight percent based on light microscopy in conjunction with acid soluble test result.

MVA, Inc.**PLM Constituent Analysis****Date:** 1/9/03**MVA #:** 5394**Location:** 28 Civic Center Plaza, Santa Ana, Bldg. 28,
Elevator Room, Roof Top, West Corner**Sample I.D. #:** N0038**Client Sample I.D. #** 28-1-01**Examination using the stereomicroscope:** White powder with brass-colored flakes and white fibers

<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:		Fillers:	
Cotton	---	Binders:		Diatoms	---
Fiberglass	---	Kaolinite (-)	---	Iron Chromite	---
Filament	---	Montmorillonite (-)	---	Iron Oxide	---
Wool	---	Gypsum	~53	Limestone	*
Mineral Wool	---	Anhydrite	<1	Magnetite	<1
Hair	---	Portland Cement	---	Mica	---
Paper/Wood		Lime (hydrated)	---	Perlite	---
Chem. Proc.	---	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	*	Pumice	---
Synthetic	---	Starch (-)	---	Quartz	<1
				Talc	---
				Vermiculite	~35

Asbestos Minerals

Chrysotile	~12	Anthophyllite	---	Tremolite/	
Amosite	---	Crocidolite	---	Actinolite	---

Comments: *Minor limestone/precipitated carbonate is included in the gypsum percentage.**Analyst:** Randy Boltin

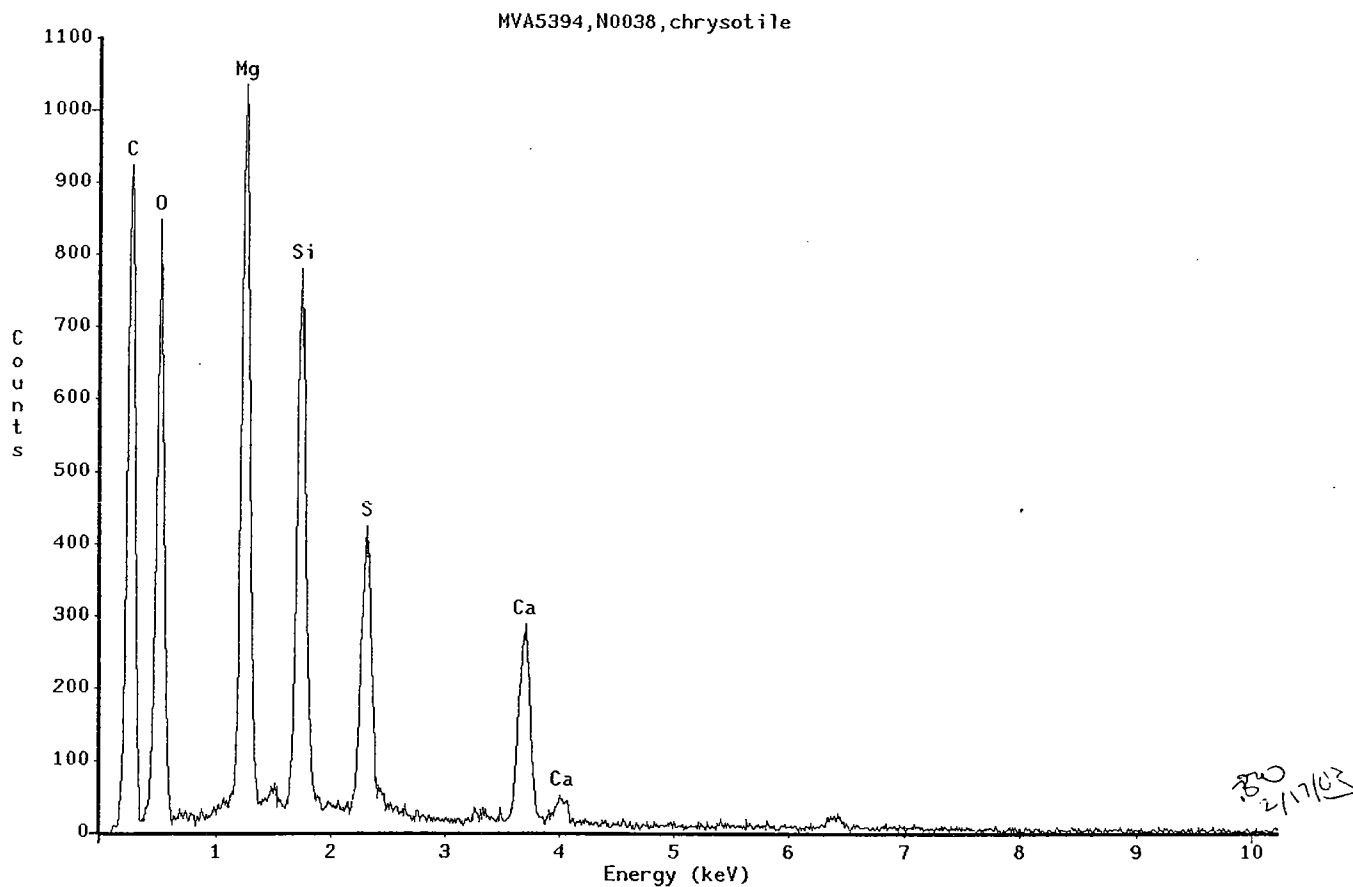
MVA, Inc.**SEM Constituent Analysis****Date:** 2/17/03**MVA #:** 5394

*Particles identified are consistent in morphology and elemental composition with known references.

Sample I.D. #: N0038

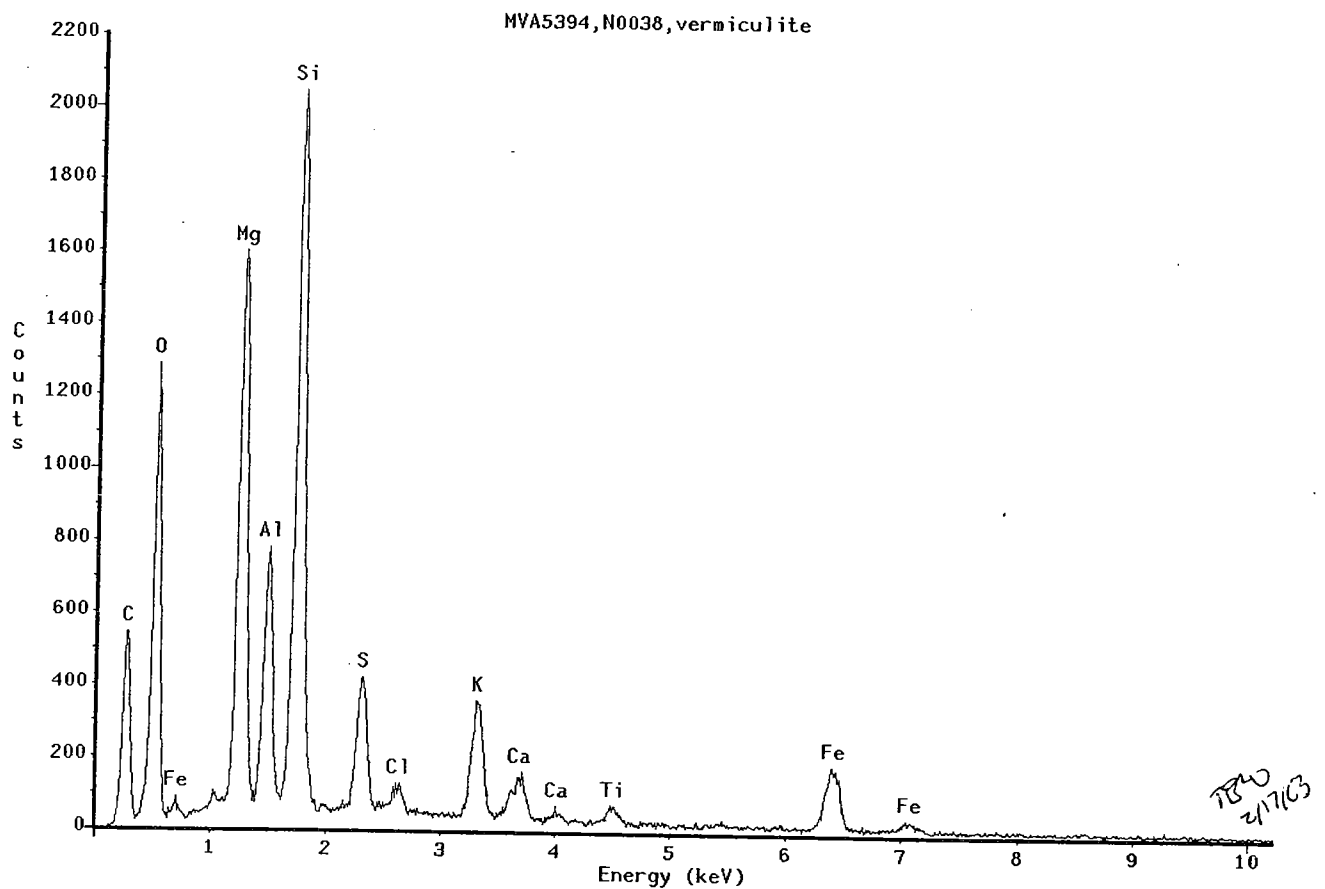
<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass	---	Titanium	---
Mineral Wool	---	Barium	---
Other	---	Zinc	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin	---
Mica	---	Montmorillonite	---
Perlite	---	Other	---
Talc (elong)	---	Ca	---
Talc (platy)	---	Ca-Mg	---
Si	---	Ca-S	Common
Vermiculite	Common	Ca-Si	---
Other	---	Ca-Al-Si	---
Asbestos Minerals:		Ca-Fe-Al-Si	---
Amosite	---	Mg-Fe	---
Anthophyllite	---	Al-Si	---
Chrysotile	Minor	Others	---
Crocidolite	---		
Tremolite/Actinolite	---		

Comments: One Ca-Mg particle observed.**Microscopist:** Tim B. Vander Wood

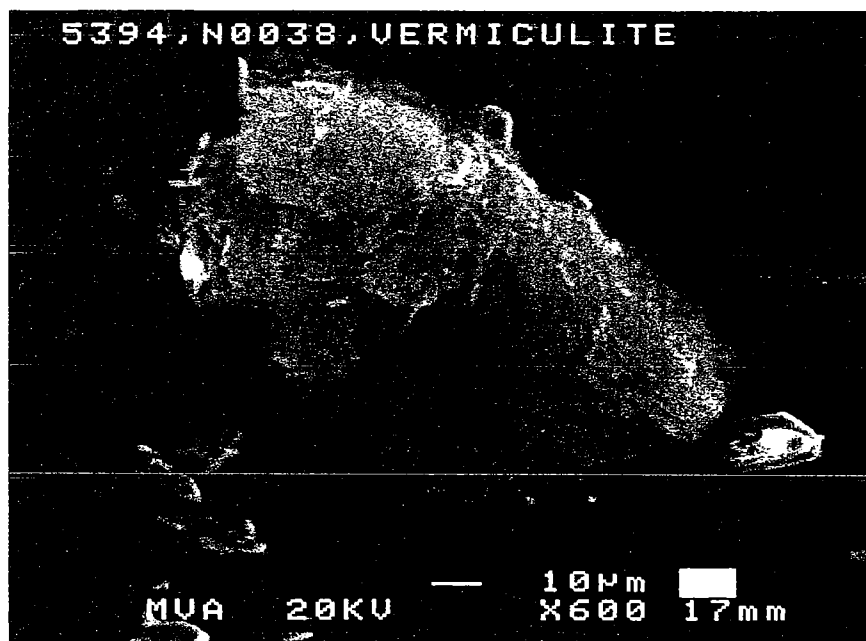


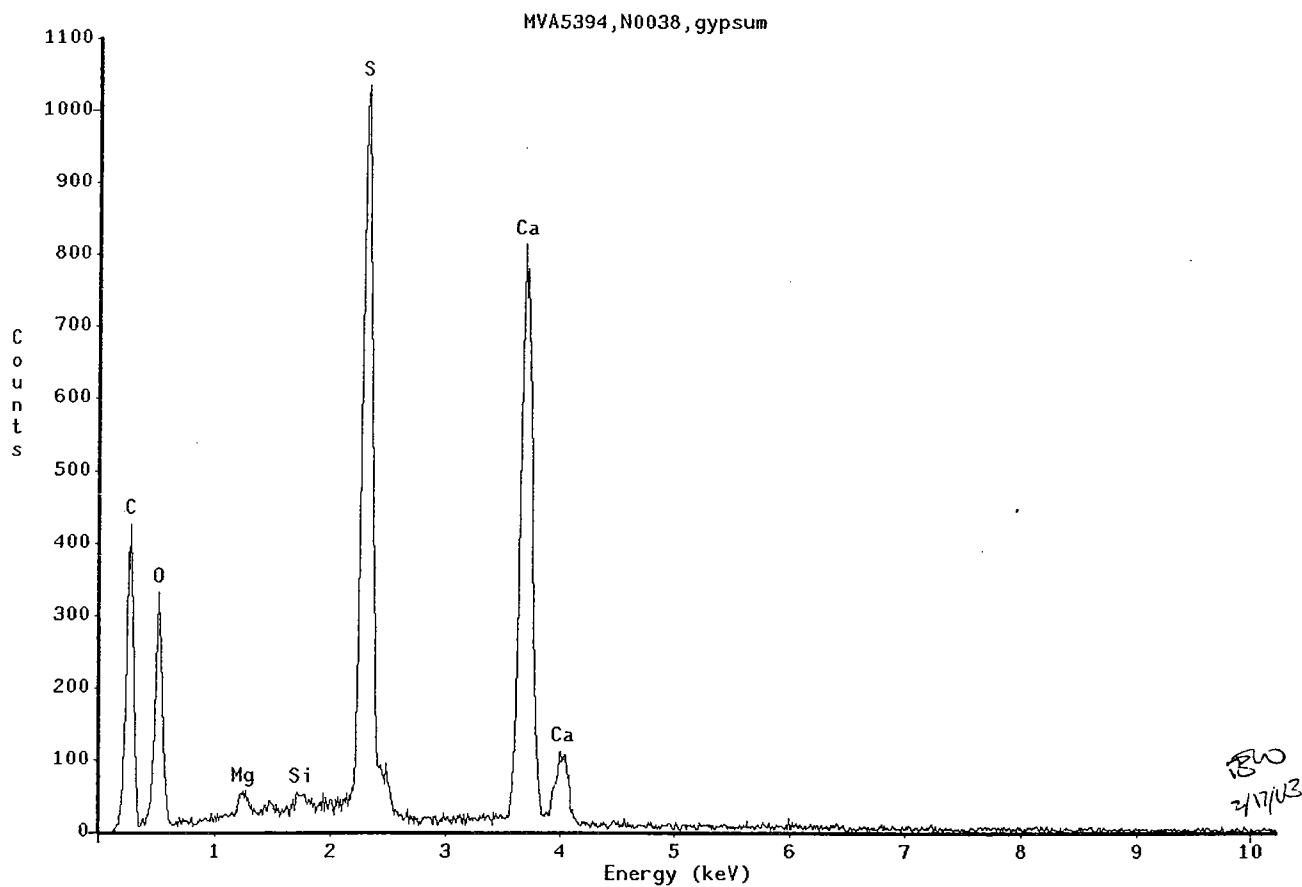
EDS spectrum (above) and SEM micrograph (below) of chrysotile.
MVA5394-N0038



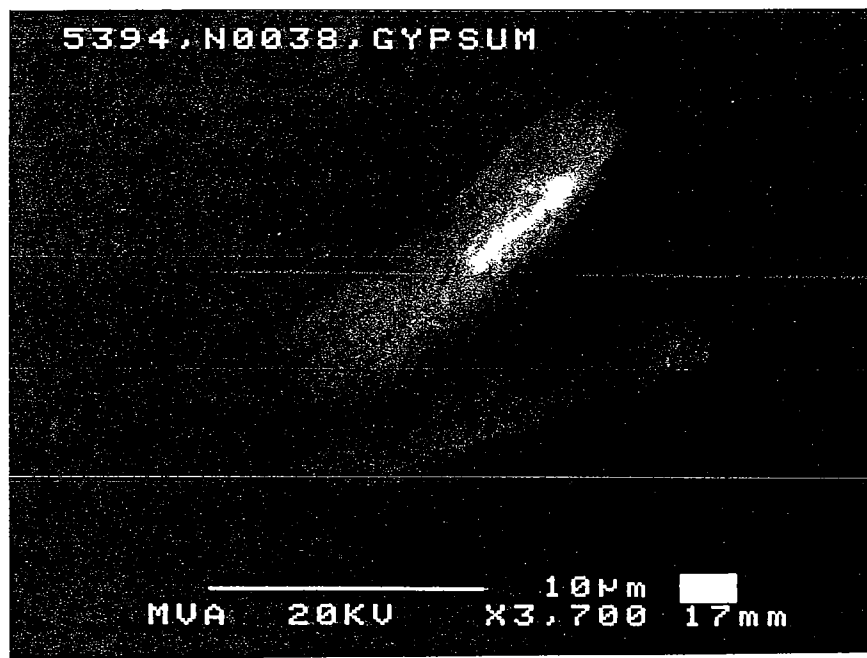


EDS spectrum (above) and SEM micrograph (below) of vermiculite.
MVA5394-N0038





EDS spectrum (above) and SEM micrograph (below) of gypsum.
MVA5394-N0038



MVA, Inc.**AEM Constituent Analysis****Date:** 2/26/03**MVA #:** 5394**Sample I.D. #:** N0038

<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass fibers	---	TiO ₂	---
Others	---	BaSO ₄	---
		ZnS	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin (xltn)	---
Mica	---	Kaolin (calc.)	---
Perlite	---	Smectite	---
Talc (elong)	---	Ca (ppt)	---
Talc (platy)	---	Ca (xtln)	---
Quartz	---	Ca-Mg, particle	---
Vermiculite	Common	Ca-S (ppt)	---
Other- Mg-Si	Trace	Ca-S (xtln)	Common
Asbestos Minerals:		Ca-Si (ppt)	---
Amosite	---	Ca-Si, particle	---
Anthophyllite	---	Ca-Al-Si	---
Chrysotile	Common	Ca-Fe-Al-Si	---
Crocidolite	---	Mg-Fe, particle	---
Tremolite/Actinolite	---	Mg-S	---
		Si (ppt)	---
		Si (xtln)	---
		Others	---

Comments: Mg-Si particles are a probable contaminant of chrysotile.**Analyst:** P. Few/R. Boltin

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394 N0038 VERMICULITE

POSSIBLE IDENTIFICATION

CU KA KB LA

SI KA

MG KA

FE KA

K KA DR IN LA? LB2

AL KA

PEAK LISTING

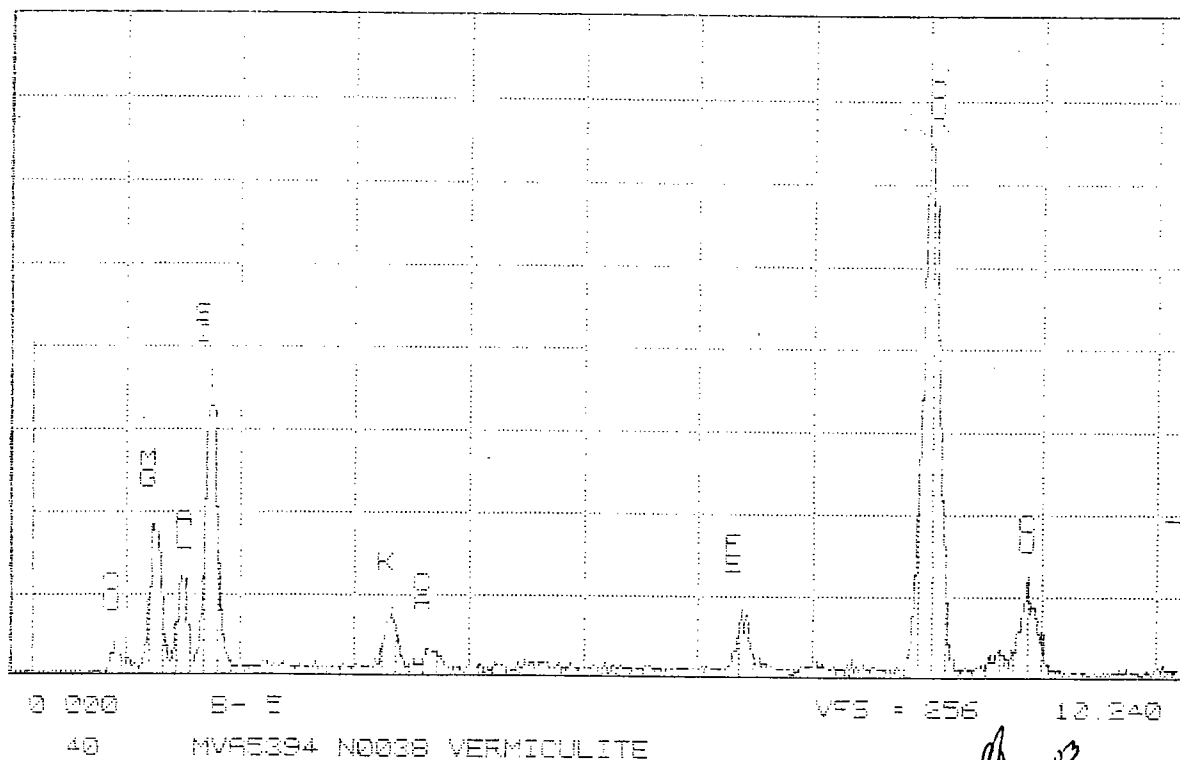
	ENERGY	AREA	EL. AND LINE
1	0.915	106	CU LA
2	1.247	760	MG KA
3	1.486	247	AL KA
4	1.743	1609	SI KA
5	3.312	314	K KA DR IN LA?
6	3.671	103	IN LB2
7	6.399	318	FE KA
8	8.023	3403	CU KA
9	8.882	514	CU KB

MVR INC.

WED 26-FEB-03 17:32

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



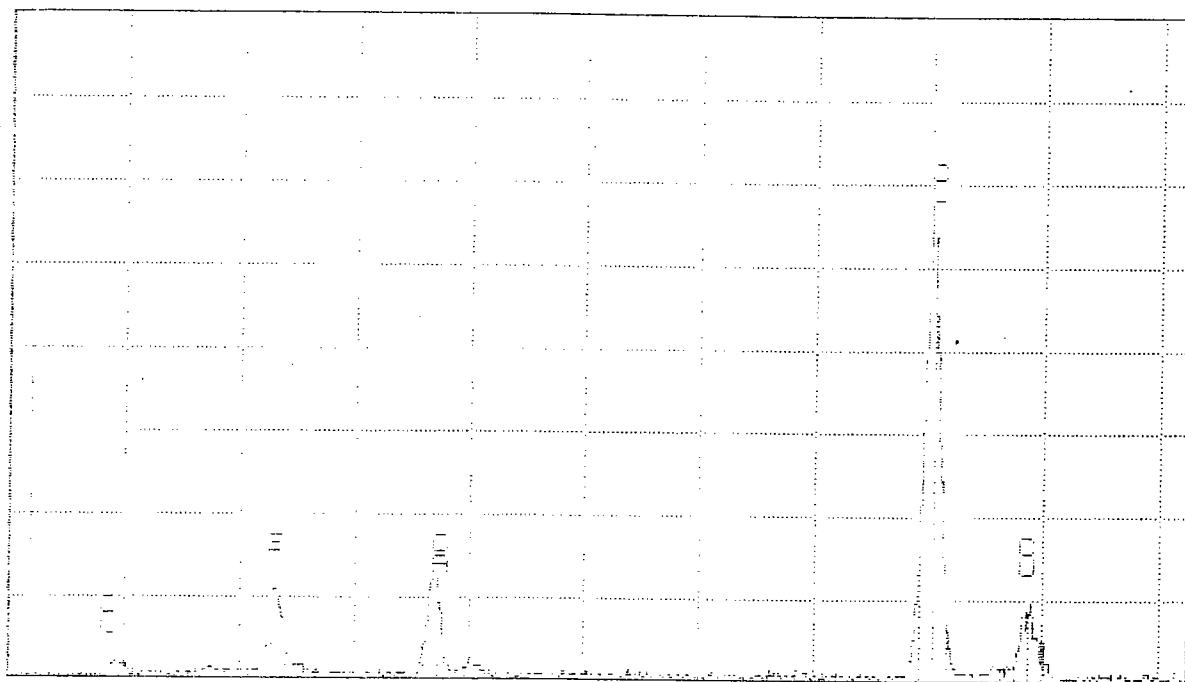
AEM spectrum of vermiculite.
MVA5394-N0038

MVA INC.

WED 26-FEB-03 17:39

Dynson: 0 0000eV = 0

FOI (1) 0.000: 2.000



0.000

0-3

VFE = 256

10.240

00

MVA5394-N0038 OF-3 FIBERS

2-27-03

AEM spectrum of Ca-S fibers.
MVA5394-N0038

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394 N0038 CHRYSOTILE

POSSIBLE IDENTIFICATION

CU KA KB LA

SI KA

MG KA

PEAK LISTING

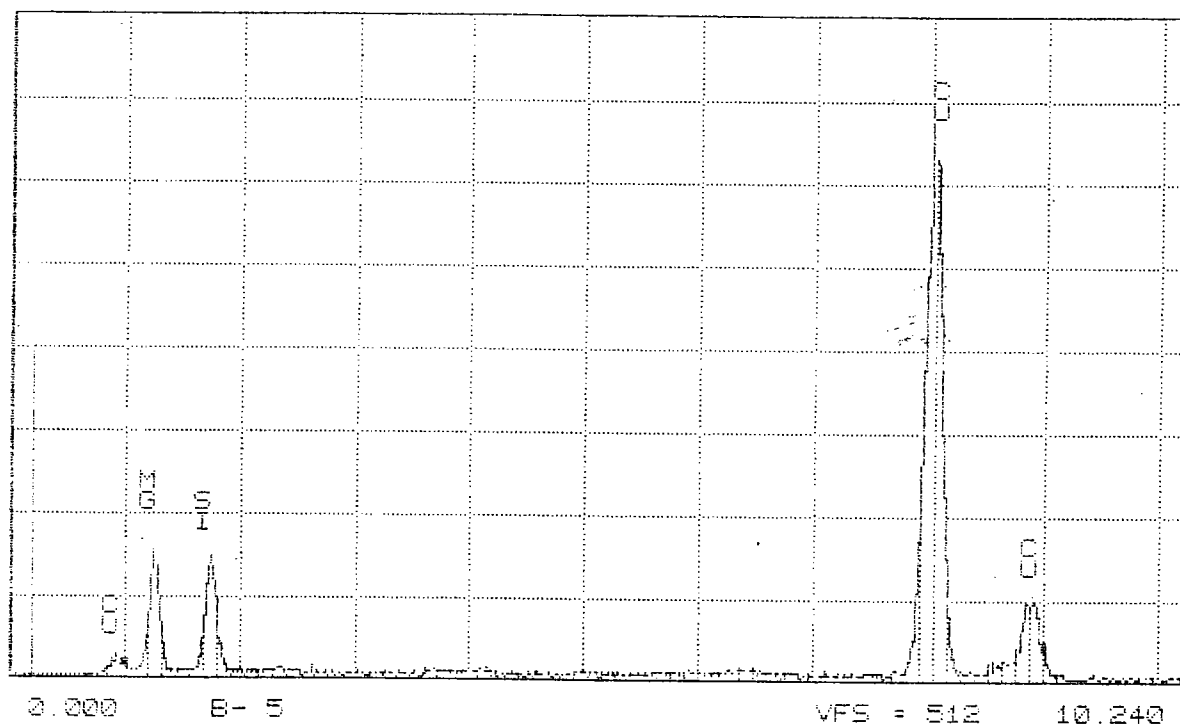
	ENERGY	AREA	EL. AND LINE
1	0.919	184	CU LA
2	1.254	1219	MG KA
3	1.748	1266	SI KA
4	8.028	6796	CU KA
5	8.891	945	CU KB

MVA INC.

WED 26-FEB-03 17:35

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



37

MVA5394 N0038 CHRYSOTILE

1-27-03

AEM spectrum of chrysotile.
MVA5394-N0038

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394 N0038 MG-SI PARTICLE

POSSIBLE IDENTIFICATION

SI KA
 MG KA
 CU KA KB
 FE KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.254	1252	MG KA
2	1.743	1535	SI KA
3	6.372	82	FE KA
4	8.025	918	CU KA
5	8.874	114	CU KB

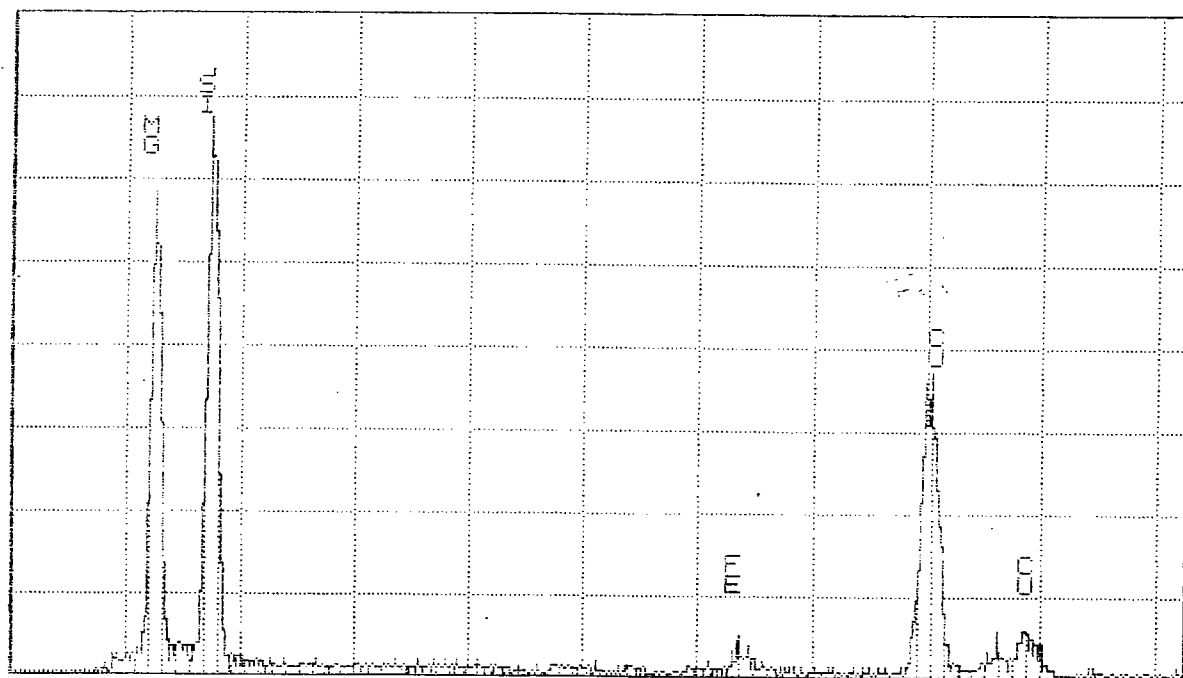
WMA
 2-27-03

MVA INC.

THU 27-FEB-03 11:01

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



0.000

VFS = 128 10.240

50 MVA5394 N0038 MG-SI PARTICLE

AEM spectrum of an Mg-Si particle.
 MVA5394-N0038

MVA, Inc.

Acid Soluble Weight Percent Determination

Date: 2/7/03

MVA#: 5394

Sample I.D.#: N0038

Initial Weights

1.	Vial w/lid	4.73695
2.	Vial + Sample	4.96945
3.	Sample Weight (S2-S1)	0.23250
4.	Filter (in container)	10.38610

Weights Following Acid Treatment

5.	Filter + Sample	10.46741
6.	Insoluble Residue (S5-S4)	0.08131
7.	Soluble Fraction (S3-S6)	0.15119

Calculation

8.	% Soluble (S7/S3) x 100%	~65%
----	--------------------------	------

Comments:

Analyst: Bill Turner

MVA, Inc.

Data Interpretation

Group: 2

Sample ID: MVA5394-N0030, -N0040, -N0042

Project: State of California

Location: Various

Type: N/A

Construction Date: Not Provided

Product Formula Matched: None

Manufacturer: N/A

MVA, Inc.**PLM Constituent Analysis****Date:** 1/10/03**MVA #:** 5394**Location:** 28 Civic Center Plaza, Santa Ana, 1st Floor, Lobby, Center Area**Sample I.D. #:** N0040**Client Sample I.D. #:** 28-2-03

Examination using the stereomicroscope: Inhomogenous sample consisting of (1) chunks of drywall (containing gypsum, carbonate, cellulose and glass fibers with a brown cellulose-rich backing), (2) chunks of consolidated white powder (containing gypsum, carbonate and synthetic foam) with a white paint surface layer, and (3) chunks of consolidated white powder (containing carbonate, gypsum, pigment and chrysotile in thin layers on both outer surfaces with an interior dominated by carbonate).

<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:	Present*	Fillers:	
Cotton	---	Binders:		Diatoms	---
Fiberglass	---	Kaolinite	---	Iron Chromite	---
Filament	---	Montmorillonite	---	Iron Oxide	---
Wool	---	Gypsum	Present*	Limestone	Present*
Mineral Wool	---	Anhydrite	---	Magnetite	---
Hair	---	Portland Cement	---	Mica	---
Paper/Wood		Lime (hydrated)	---	Perlite	---
Chem. Proc.	---	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	---	Pumice	---
Synthetic	---	Starch	---	Quartz	---
				Talc	---
				Vermiculite	---

Asbestos Minerals

Chrysotile	Present	Anthophyllite	---	Tremolite/	
Amosite	---	Crocidolite	---	Actinolite	---

Comments: Only material (3) is considered in the above analysis. *There is insufficient material present for accurate estimate of relative abundance of constituents in the chrysotile-bearing portion of material (3). There is also insufficient material present and the probability of cross-contamination with other materials present in the sample is too great for accurate product identification.

Analyst: Randy Boltin

Asbestos Constituent Analysis

MVA Project No. 5394

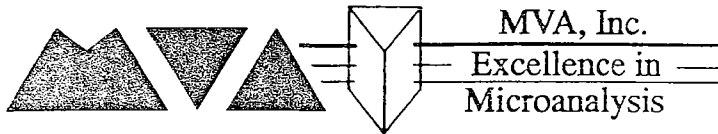
W.R. Grace Claim #10649

DGS Claim #1011589

**Building Address:
1416 9th Street, Sacramento**

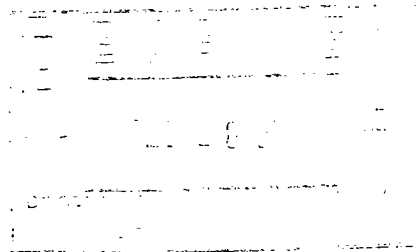
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27 February 2003

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Department of General Services
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Re: Asbestos Constituent Analysis, Contract No. 3056115; MVA Project No. 5394

Dear Mr. Hood:

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Thank you for consulting MVA, Inc. Please contact us if you have any questions.

Sincerely,

A handwritten signature in dark ink, likely belonging to Randy Boltin.

Randy Boltin
Senior Research Scientist

A handwritten signature in dark ink, likely belonging to Tim B. Vander Wood.

Tim B. Vander Wood, Ph.D.
Executive Director

Report of Results: MVA5394

**Constituent Analysis
Various Buildings**

Prepared for:

**Mr. Dan Hood, Project Manager
Department of General Services
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707 3rd Street, Suite 4-430
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Prepared by:

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27 February 2003

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Excellence in
Microanalysis**

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Report of Results: MVA5394

Constituent Analysis Various Buildings

Introduction

This report contains the analytical results and their interpretation for thirteen samples of suspected asbestos containing building materials from various buildings that were sent to MVA, Inc. under Agreement #3056115. The samples were first examined by polarized light microscopy (PLM) including microchemical tests. If necessary, the samples were further analyzed by scanning electron microscopy (SEM) combined with energy dispersive x-ray spectrometry (EDS), and by analytical electron microscopy (AEM) utilizing EDS and/or selected area electron diffraction (SAED). Wet chemistry was also performed on certain samples to determine a soluble weight percent. The results of all analyses and a data interpretation sheet for the samples are included as an appendix to this report.

Product formula matches were derived from comparison between determined sample composition and available product formulas. In any case where more than one product formula matched the determined composition, each match was noted. If no available product formula matched the determined sample composition, a 'no match' was indicated.

Results

The results of product formula matching for the samples are found in Table 1. The data on which the matches rely are included on the Data Interpretation page in the appendix.

Group 4

Product Formula(s) Matched: MonoKote (MK3)

Client Sample ID	MVA Sample ID
34-1-8-03-FP-1 (901 Stockton State Building)	MVA5394-N0022
969-1-8-FP-03-1 (7650 S. Newcastle Rd. Bldg. 969)	MVA5394-N0024
969-1-8-03-AT-1 (7650 S. Newcastle Rd. Bldg. 969)	MVA5394-N0026
1023-1-8-03-1 (7650 S. Newcastle Rd. Bldg. 969)	MVA5394-N0028
DSA 5-FP-1803-01	MVA5394-N0032
28-1-01 (28 Civic Center Plaza, Santa Ana)	MVA5394-N0038

Table 1: Summary of Results**MVA Project No. 5394****Group 1****Product Formula(s) Matched:** No Asbestos Detected

Client Sample ID	MVA Sample ID
120-1-01 (120 S. Spring St., LA)	MVA5394-N0034
120-2-03 (120 S. Spring St., LA)	MVA5394-N0036
3277-2-05	
(2501 Harbor Blvd. Costa Mesa)	MVA5394-N0046

Group 2**Product Formula(s) Matched:** No Match

Client Sample ID	MVA Sample ID
DSA 3671-FP-1803-01	MVA5394-N0030
28-2-03	
(28 Civic Center Plaza, Santa Ana)	MVA5394-N0040
3265-1-01	
(2501 Harbor Blvd. Costa Mesa)	MVA5394-N0042

Group 3**Product Formula(s) Matched:** Zonolite Acoustical Plastic

Client Sample ID	MVA Sample ID
3234-1-3	
(2501 Harbor Blvd., Costa Mesa)	MVA5394-N0044

MVA, Inc.

Data Interpretation

Group: 4

Sample ID: MVA5394-N0022, -N0024, -N0026, -N0028, -N0032, -N0038

Project: State of California

Location: Various

Type: N/A

Construction Date: Not Provided

Product Formula Matched: "Monokote (MK3)"

Manufacturer: W.R. Grace

Constituent Identified	Estimated Weight Percent (Avg)*
Chrysotile	~11%
Vermiculite	~34%
Gypsum including Limestone/ Precipitated Carbonate	~55%

Comments: Minor limestone/precipitated carbonate is included with gypsum.
*Estimated weight percent based on light microscopy in conjunction with acid soluble test result.

MVA, Inc.**PLM Constituent Analysis****Date:** 1/9/03**MVA #:** 5394**Location:** DSA5-1728-East Beam**Sample I.D. #:** N0032**Client Sample I.D. #** DSA5-FP-1803-01**Examination using the stereomicroscope:** White powder with brass-colored flakes and white fibers

<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:		Fillers:	
Cotton	---	Binders:		Diatoms	---
Fiberglass	---	Kaolinite (-)	---	Iron Chromite	---
Filament	---	Montmorillonite (-)	---	Iron Oxide	---
Wool	---	Gypsum	~52	Limestone	*
Mineral Wool	---	Anhydrite	<1	Magnetite	<1
Hair	---	Portland Cement	---	Mica	---
Paper/Wood	---	Lime (hydrated)	---	Perlite	---
Chem. Proc.	---	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	*	Pumice	---
Synthetic	---	Starch (-)	---	Quartz	<1
				Talc	---
				Vermiculite	~35

Asbestos Minerals

Chrysotile	~13	Anthophyllite	---	Tremolite/	
Amosite	---	Crocidolite	---	Actinolite	---

Comments: *Limestone/precipitated carbonate is included in the gypsum percentage.**Analyst:** Randy Boltin

MVA, Inc.

SEM Constituent Analysis

Date: 2/13/03

MVA #: 5394

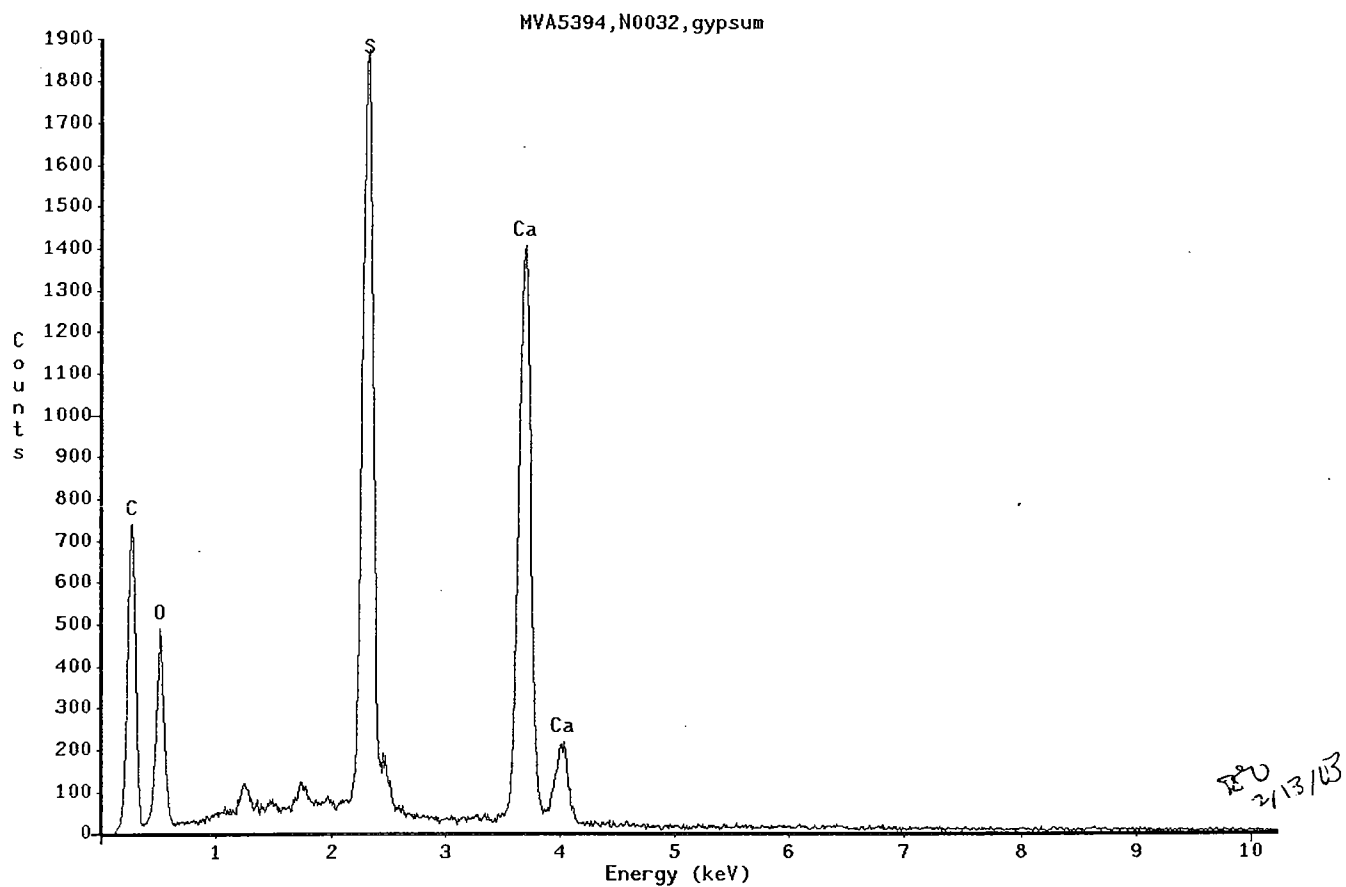
*Particles identified are consistent in morphology and elemental composition with known references.

Sample I.D. #: N0032

<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass	---	Titanium	---
Mineral Wool	---	Barium	---
Other	---	Zinc	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin	---
Mica	---	Montmorillonite	---
Perlite	---	Other	---
Talc (elong)	---	Ca	---
Talc (platy)	---	Ca-Mg	---
Si	---	Ca-S	Common
Vermiculite	Common	Ca-Si	---
Other	---	Ca-Al-Si	---
Asbestos Minerals:		Ca-Fe-Al-Si	---
Amosite	---	Mg-Fe	---
Anthophyllite	---	Al-Si	---
Chrysotile	Minor	Others	---
Crocidolite	---		
Tremolite/Actinolite	---		

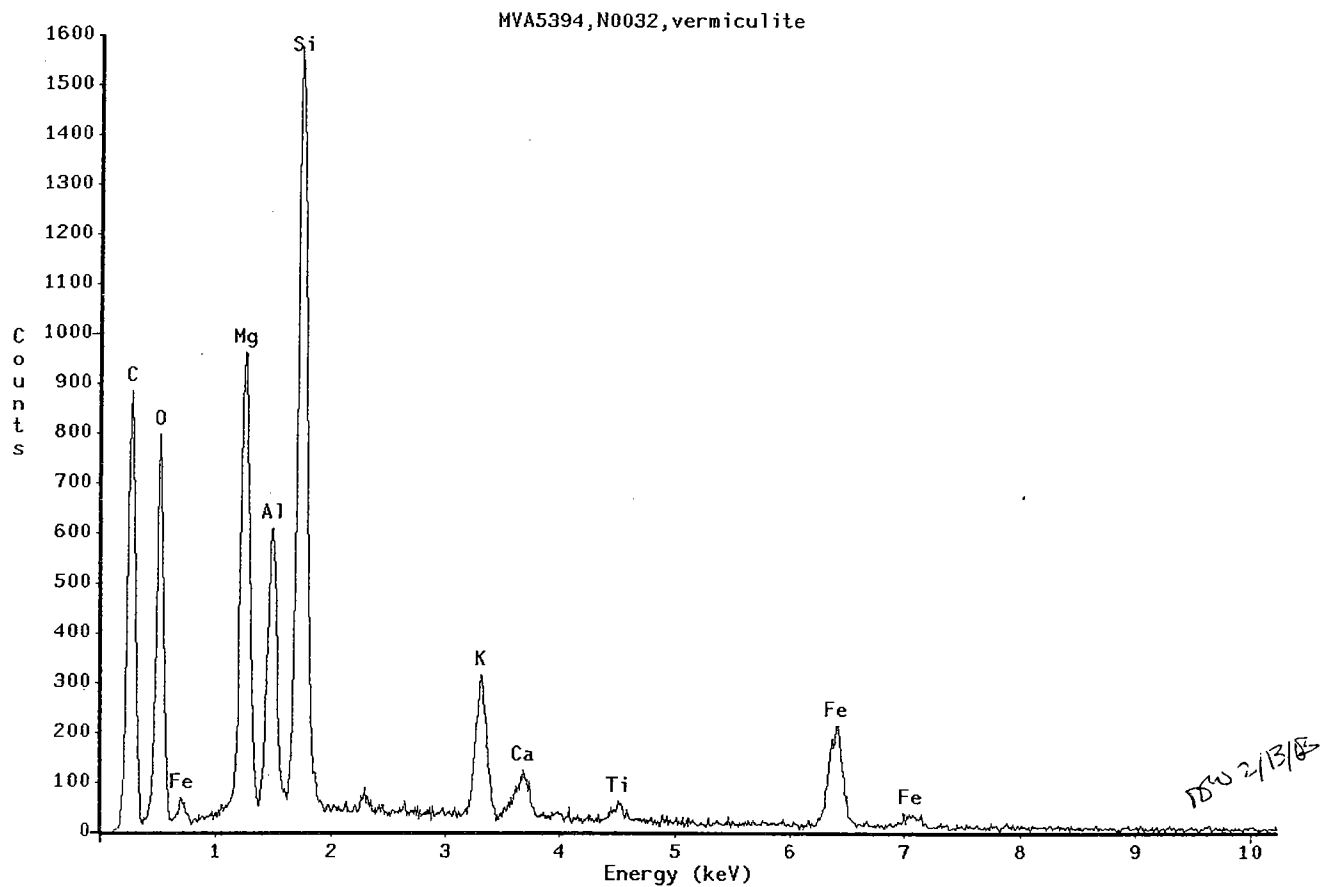
Comments:

Microscopist: Tim B. Vander Wood



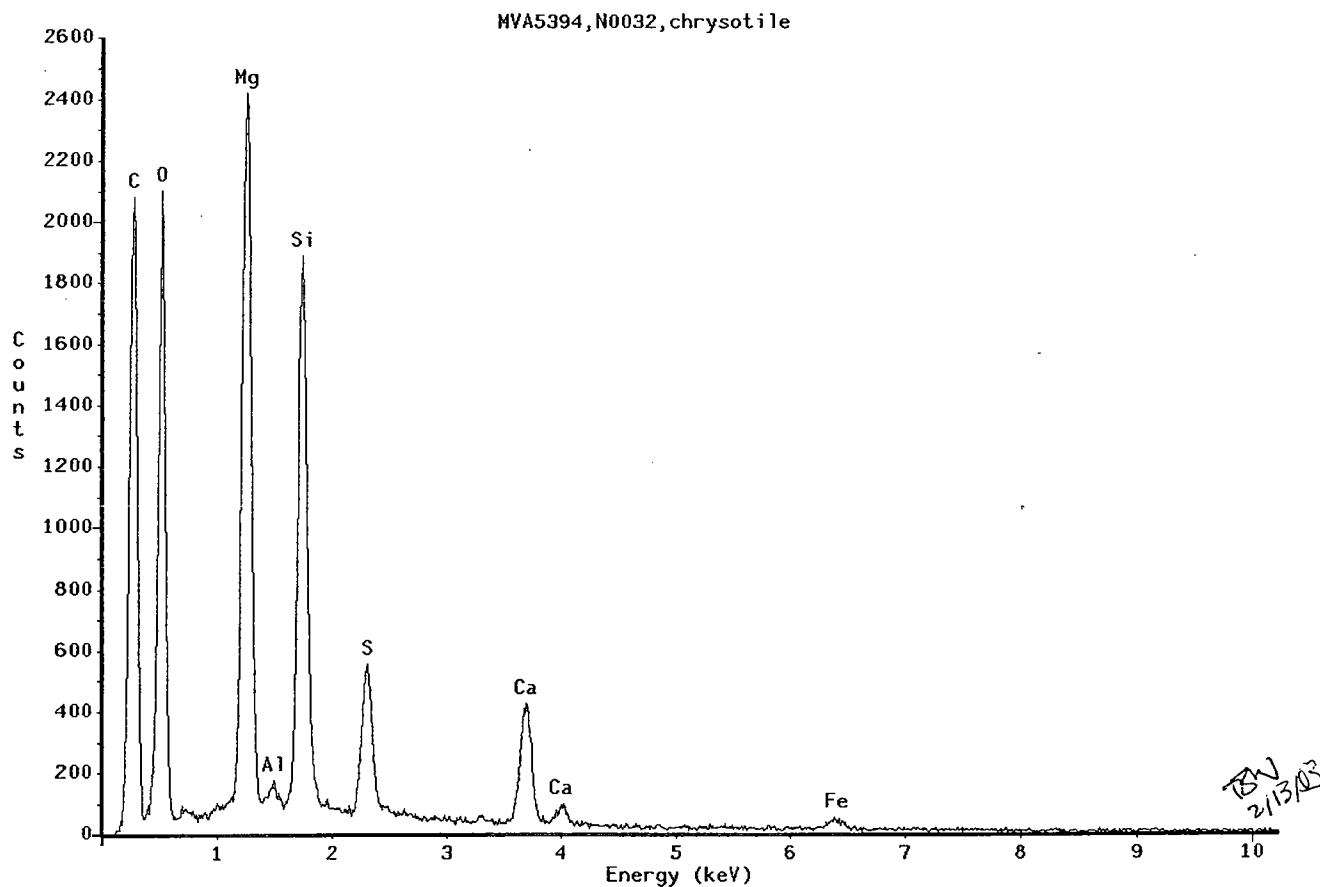
EDS spectrum (above) and SEM micrograph (below) of gypsum.
MVA5394-N0032



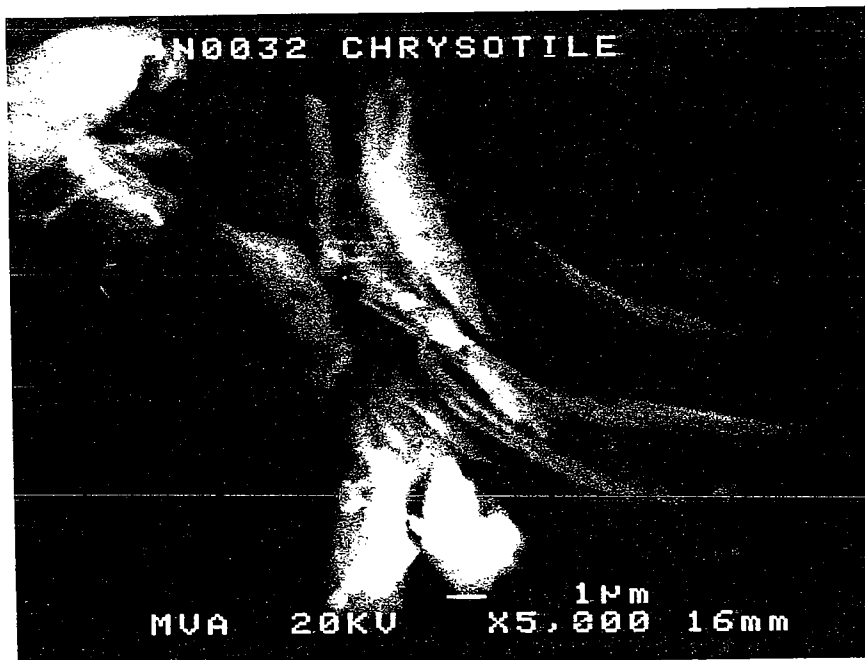


EDS spectrum (above) and SEM micrograph (below) of vermiculite.
MVA5394-N0032





EDS spectrum (above) and SEM micrograph (below) of chrysotile.
MVA5394-N0032



MVA, Inc.

AEM Constituent Analysis

Date: 2/26/03

MVA #: 5394

Sample I.D. #: N0032

<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass fibers	---	TiO ₂	---
Others	---	BaSO ₄	---
		ZnS	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin (xltln)	---
Mica	---	Kaolin (calc.)	---
Perlite	---	Smectite	---
Talc (elong)	---	Ca (ppt)	---
Talc (platy)	---	Ca (xltln)	---
Quartz	---	Ca-Mg, particle	---
Vermiculite	Common	Ca-S (ppt)	---
Other- Mg-Si Particle	Minor	Ca-S (xltln)	Common
Asbestos Minerals:		Ca-Si (ppt)	---
Amosite	---	Ca-Si, particle	---
Anthophyllite	---	Ca-Al-Si	---
Chrysotile	Common	Ca-Fe-Al-Si	---
Crocidolite	---	Mg-Fe, particle	---
Tremolite/Actinolite	Trace	Mg-S	---
		Si (ppt)	---
		Si (xltln)	---
		Others	---

Comments:

Analyst: P. Few

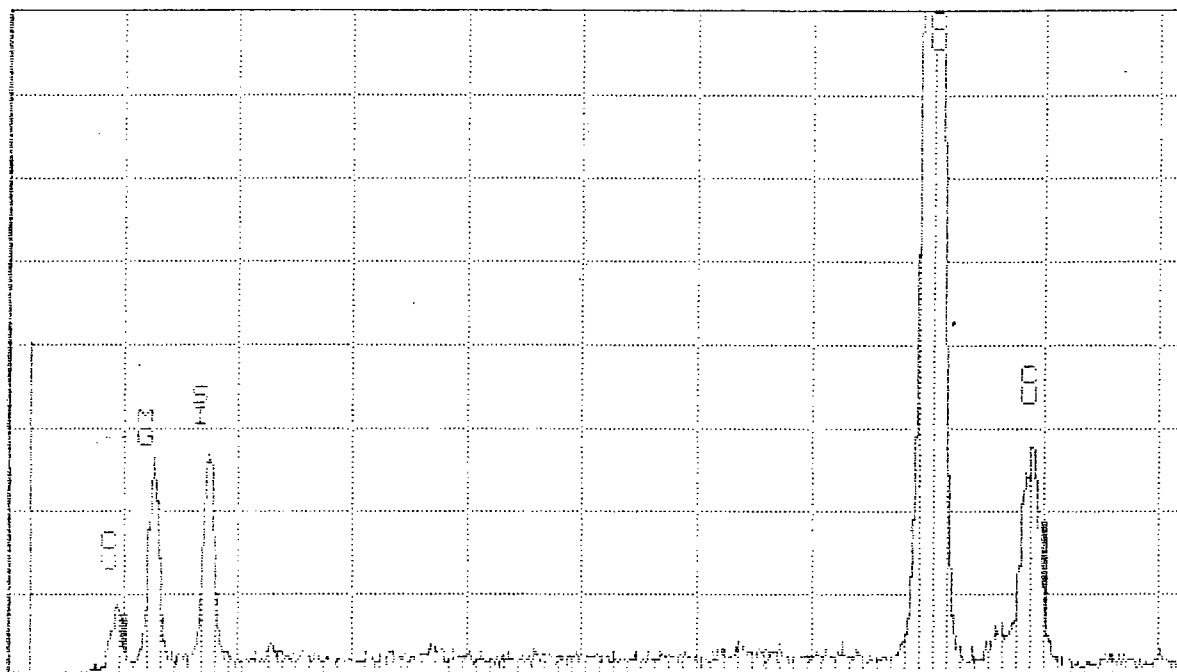
MVR INC.

WED 26-FEB-03 16:21

Outsch: 0.000keV = 0

ROI

(1) 0 000: 0.000



0.000

B- 5

VFE = 256

10.240

104

MVA5394-N0032 CHRYSOTILE

Handwritten: 22603

AEM spectrum of chrysotile.
MVA5394-N0032

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0032 VERMICULITE

POSSIBLE IDENTIFICATION

CU KA KB LA
 SI KA
 MG KA
 FE KA
 CA KA
 AL KA
 K KA OR IN LA?

PEAK LISTING

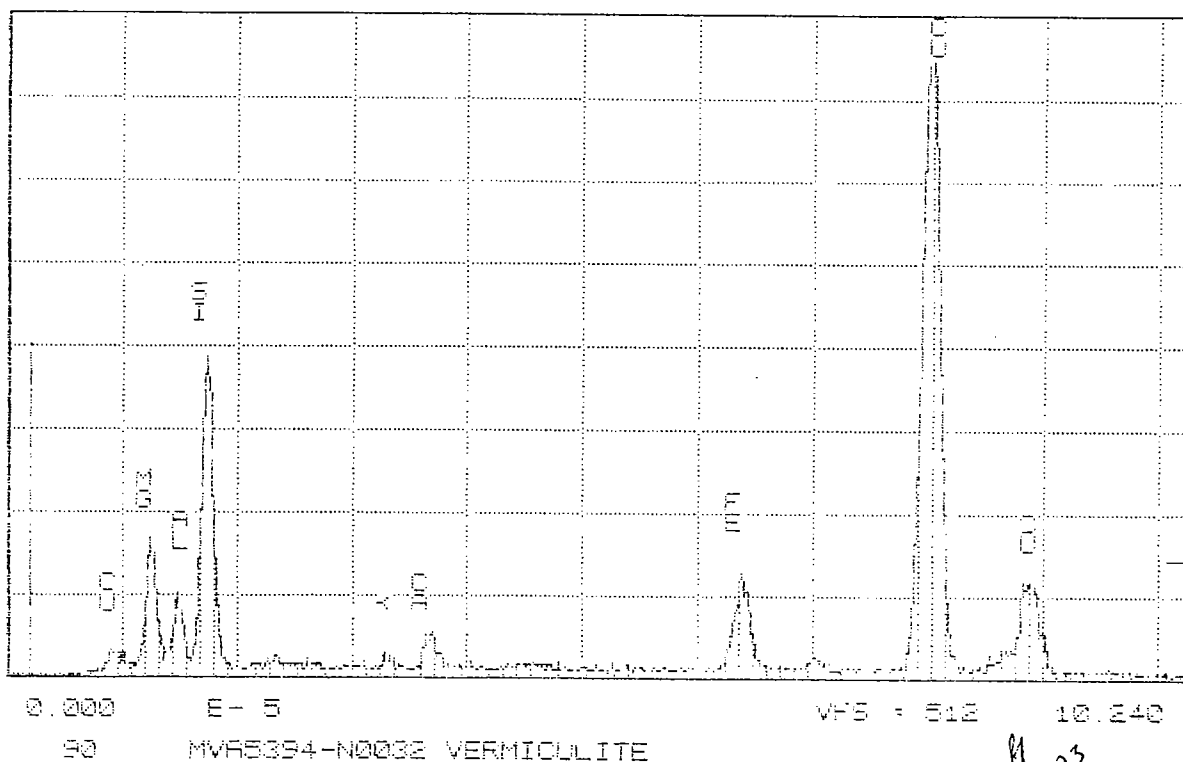
	ENERGY	AREA	EL. AND LINE
1	0.924	200	CU LA
2	1.247	1185	MG KA
3	1.480	332	AL KA
4	1.743	3388	SI KA
5	2.310	133	K KA OR IN LA?
6	3.679	401	CA KA
7	6.385	1086	FE KA
8	8.020	8502	CU KA
9	8.879	1095	CU KB

MVA INC.

WED 25-FEB-03 16:25

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



AEM spectrum of vermiculite.
 MVA5394-N0032

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0032 CA-S PARTICLE

POSSIBLE IDENTIFICATION

CA KA KB

S KA

CU KA KB

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	2.307	2490	S KA
2	3.690	2617	CA KA
3	4.019	321	CA KB
4	8.026	1347	CU KA
5	8.902	184	CU KB

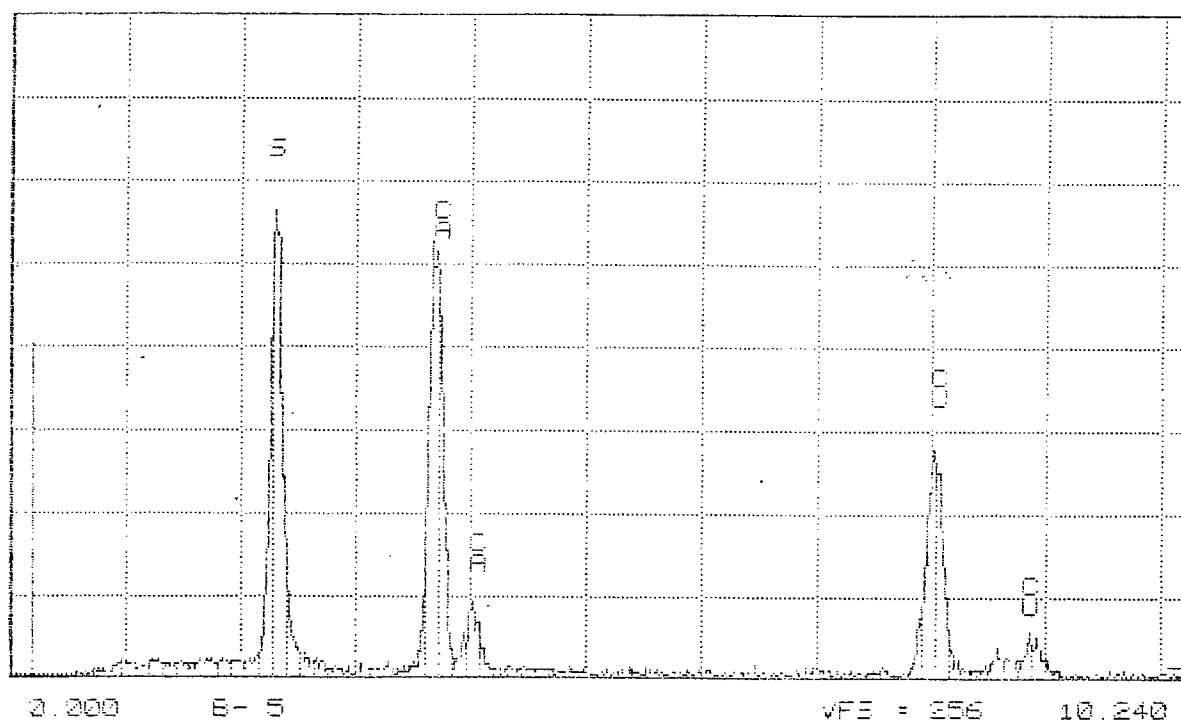
MVA INC.

WED 26-FEB-03 16:38

Cursor: 0.000keV = 0

ROI

(1) 0.000: 0.000



0.000

E-5

VFE = 256

10.240

14

MVA5394-N0032 CA-S PARTICLE

98
22603

AEM spectrum of a Ca-S particle.
MVA5394-N0032

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394 N0032 MG-SI PARTICLE

POSSIBLE IDENTIFICATION

SI KA
MG KA
CU KA
FE KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.256	1172	MG KA
2	1.748	1209	SI KA
3	6.368	63	FE KA
4	8.020	408	CU KA

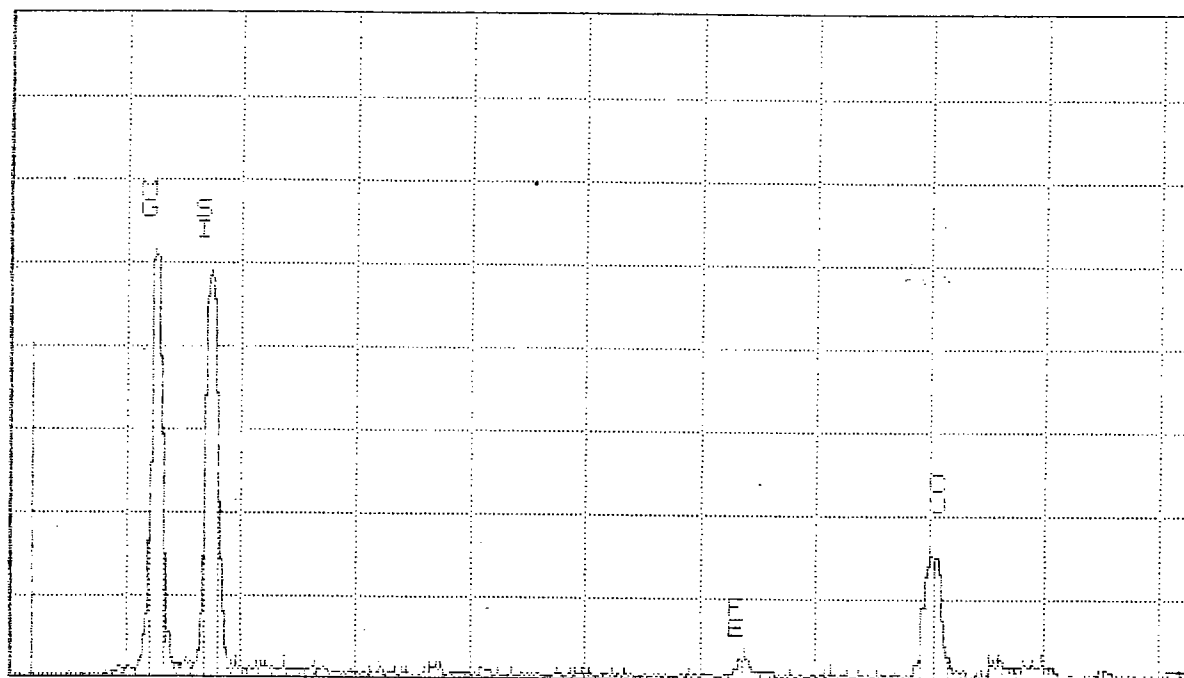
MVA INC.

WED 26-FEB-03 16:59

Dursch: 0.000keV = 0

ROI

(1) 0.000: 0.000



0.000

B- 5

VFS = 128

10.240

66

MVA5394 N0032 MG-SI PARTICLE

22603

AEM spectrum of an Mg-Si particle.
MVA5394-N0032

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394 N0032 TREMOLITE-ACTINOLITE FIBER

POSSIBLE IDENTIFICATION

SI KA
 CU KA KB
 MG KA
 CA KA KB
 FE KA
 ZN KA LA

PEAK LISTING			
	ENERGY	AREA	EL. AND LINE
1	0.985	97	ZN LA
2	1.234	2383	MG KA
3	1.741	6680	SI KA
4	3.690	1499	CA KA
5	4.017	218	CA KB
6	6.384	654	FE KA
7	8.020	4612	CU KA
8	8.560	114	ZN KA
9	8.830	557	CU KB

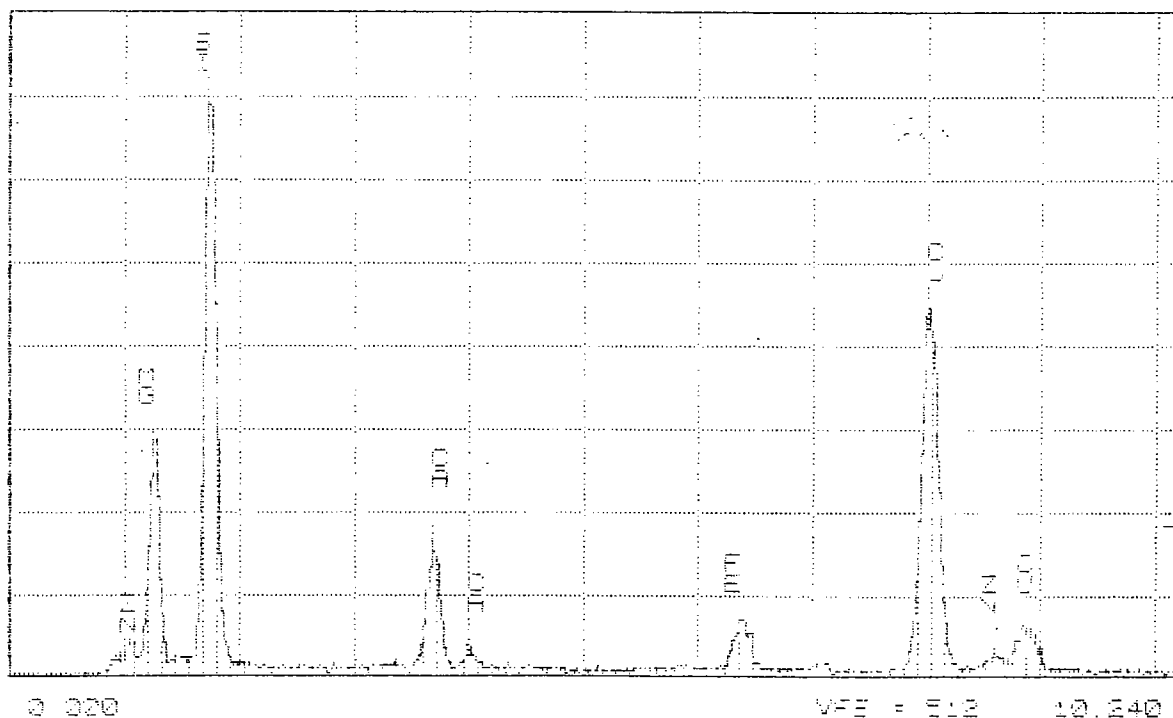
WAB
2-26-03

MVA INC.

WED 26-FEB-03 17:16

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



MVA5394 N0032 TREMOLITE-ACTINOLITE FIBER

AEM spectrum of a tremolite-actinolite fiber.
 MVA5394-N0032

MVA, Inc.

Acid Soluble Weight Percent Determination

Date: 2/7/03

MVA#: 5394

Sample I.D.#: N0032

Initial Weights

1.	Vial w/lid	4.71858
2.	Vial + Sample	4.98752
3.	Sample Weight (S2-S1)	0.26894
4.	Filter (in container)	10.34084

Weights Following Acid Treatment

5.	Filter + Sample	10.45464
6.	Insoluble Residue (S5-S4)	0.11380
7.	Soluble Fraction (S3-S6)	0.15514

Calculation

8.	% Soluble (S7/S3) x 100%	~58%
----	--------------------------	------

Comments:

Analyst: Bill Turner

Asbestos Constituent Analysis

MVA Project No. 5394

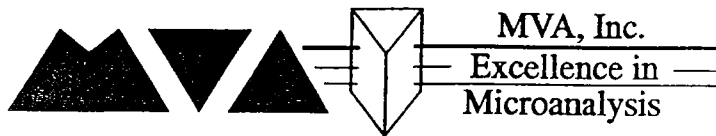
W.R. Grace Claim #10650

DGS Claim #1011578

**Building Address:
10333 El Camino Real, Atascadero**

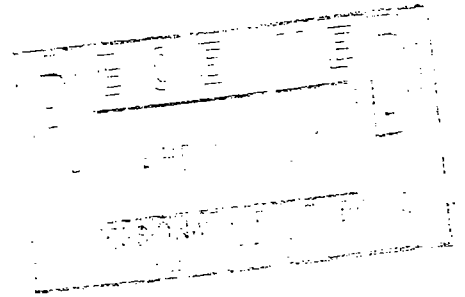
Prepared by:

**Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, 4th Floor
West Sacramento, CA 95605**



28 March 2003

Mr. Dan Hood, Project Manager
Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, Suite 4-430
West Sacramento, CA 95605



Re: Asbestos Constituent Analysis; MVA Project No. 5394

Dear Mr. Hood:

Enclosed is MVA, Inc.'s Report of Results of our analyses of samples we have received from you for identification of product manufacturer.

Thank you for consulting MVA, Inc. If you have any questions about this report, please do not hesitate to call either of us at 770-662-8509, or by email at tvanderwood@mva-inc.com. We will retain your samples for thirty days prior to disposing of them.

Sincerely,

Handwritten signature of Randy Boltin.

Randy Boltin.
Senior Research Scientist

Handwritten signature of Tim B. Vander Wood.

Tim B. Vander Wood, Ph.D.
Executive Director

Report of Results: MVA5394
Asbestos Constituent Analysis

Prepared for:

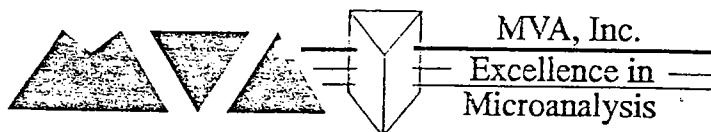
**Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, Suite 4-430
West Sacramento, CA 95605**

Prepared by:

**MVA, Inc.
5500 Oakbrook Parkway, Suite 200
Norcross, GA 30093**

28 March 2003

\\LESLIE\\mva_data\\PROJECTS\\Proj5300\\5394\\rpt032803_5394.doc



**5500 Oakbrook Parkway #200
Norcross, GA 30093
770-662-8509 • FAX 770-662-8532
www.mvainc.com**

Report of Results: MVA5394
Asbestos Constituent Analysis

Introduction

The samples were first examined by polarized light microscopy (PLM) including microchemical tests. If necessary, the samples were further analyzed by scanning electron microscopy (SEM) combined with energy dispersive x-ray spectrometry (EDS), and by analytical electron microscopy (AEM) utilizing EDS and/or selected area electron diffraction (SAED). Wet chemistry was also performed on certain samples to determine a soluble weight percent.

Product formula matches were derived from comparison between determined sample composition and available product formulas. In any case where more than one product formula matched the determined composition, each match was noted. If no available product formula matched the determined sample composition, a 'no match' was indicated.

Results

Product formula matches are noted in Table 1 on the following page. Table 2 contains MVA sample number assignments and additional details of the analytical results from these samples as well as the samples previously submitted. An appendix containing all of the analytical results not previously forwarded follows.

TABLE 1. Product Formula Matching Results

The following samples were a positive match for W.R. Grace's Monokote (MK-3):

OB8-022603-01	OB9-0220603-02
ASH-030603-01	SCC-AD-A-030503-02
CCI-030503-01	CCI-030503-05
CYA-02	

The following samples were a positive match for W.R. Grace's Zonolite Acoustical Plastic:

SSRH030303-01 Layer A	SSRH-030303-03 Layer A
-----------------------	------------------------

The following samples were a positive match for W.R. Grace's Zonolite Finish Coat:

SSRH030303-01 Layer B	SSRH-030303-03 Layer B
-----------------------	------------------------

The following sample was a positive match for U.S. Gypsum's Imperial QT Texture Finish:

PH-RES-030403-02

Table 2. Detailed Sample Descriptions

Location	Sample ID	MVA-ID	Findings	first reported
120 Spring St	120-1-01	5394-N0034	No Asbestos	2/27/03
120 Spring St	120-1-02	5394-N0036	No Asbestos	2/27/03
2501 Harbor Blvd.	3234-1-03	5394-N0044	WRG Zonolite Acoustical Plastic	2/27/03
2501 Harbor Blvd.	3265-1-01	5394-N0042	No match	2/27/03
2501 Harbor Blvd.	3277-2-05	5394-N0046	No Asbestos	2/27/03
28 Civic Center Plaza	28-1-01	5394-N0038	WRG Monokote (MK3)	2/27/03
28 Civic Center Plaza	28-2-03	5394-N0040	No ID-Inhomogeneous	2/27/03
7650 S. Newcastle DSA 1023	1023-1-8-03-AT-1	5394-N0028	WRG Monokote (MK3)	2/27/03
7650 S. Newcastle DSA 969	969-1-8-03-AT-1	5394-N0026	WRG Monokote (MK3)	2/27/03
7650 S. Newcastle DSA 969	969-1-8-03-FP-1	5394-N0024	WRG Monokote (MK3)	2/27/03
Agricultural Annex	AA-022603-01		Not Analyzed	
Agricultural Annex	AA-022603-02	N0326	No Asbestos	3/18/03
DMV HQ Bldg East DSA 3671	3671-FP-1803-01	5394-N0030	No Match	2/27/03
DMV HQ Bldg East DSA 3671	3671-FP-1803-02		Not Analyzed	
OB8	OB8-022603-01	N0327	WRG Monokote (MK3)	3/18/03
OB8	OB8-022603-02		Not Analyzed	
OB9	OB9-022603-01		Not Analyzed	
OB9	OB9-022603-02	N0320	WRG Monokote (MK3)	3/18/03
Resources Bldg DSA 5	5-FP-1803-01	5394-N0032	WRG Monokote (MK3)	2/27/03
Stockton OB DSA 901	34-1-8-03-AT-1	5394-N0020	USG Audicote	1/13/03
Stockton OB DSA 901	34-1-8-03-FP-1	5394-N0022	WRG Monokote (MK3)	2/27/03
Patton State Hospital	Admin #3	N0402	No Asbestos	3/18/03
Patton State Hospital	Admin #4	N0403	No Asbestos	3/18/03
Patton State Hospital	Admin Annex#1	N0400	No Asbestos	3/18/03
Patton State Hospital	Admin Annex#2	N0401	No Asbestos	3/18/03
Patton State Hospital	Audit#5	N0404	No Asbestos	3/18/03
Patton State Hospital	Audit#6	N0405	No Asbestos	3/18/03
DFA HQ	FA-031303-01	N0498	No Asbestos	3/18/03
DFA HQ	FA-031303-02	N0499	No Asbestos	3/18/03
Napa State Hospital	NSH-258-030303-01		Not Analyzed	
Napa State Hospital	NSH-258-030303-02	N0431	No Asbestos	3/18/03
Napa State Hospital	NSH-168-030303-01	N0432	No Asbestos	3/18/03
Napa State Hospital	NSH-168-030303-02		Not Analyzed	
Peddler Hills	PH-DORM-030403-01	N0434	No Match	3/18/03
Peddler Hills	PH-DORM-030403-02		Not Analyzed	
Peddler Hills	PH-RES-030403-01		Not Analyzed	
Peddler Hills	PH-RES-030403-02	N0437	USG Imperial QT Texture Finish	3/18/03
Northern Youth Corr Rec Center	NYCRC-MW-030403-01	N0438	No Asbestos	3/18/03
Northern Youth Corr Rec Center	NYCRC-MW-030403-02		Not Analyzed	
CHP Training Center	CHP-MPC-030403-01		Not Analyzed	
CHP Training Center	CHP-MPC-030403-02	N0441(A)	No asbestos	3/18/03
CHP Training Center	CHP-MPC-030403-02	N0441(B)	Insufficient sample	3/18/03

Location	Sample ID	MVA-ID	Findings	first reported
Stockton Facility	SF-030403-01	N0458	No Match	3/18/03
Stockton Facility	SF-030403-02		Not Analyzed	
Stockton Facility	SF-030403-03	N0456	No Asbestos	3/18/03
Stockton Facility	SF-030403-04		Not Analyzed	
Sierra S Reg HQ Shop	SSRH-030303-01	N0450(A)	WRG Zonolite Acoustical Plastic	3/18/03
Sierra S Reg HQ Shop	SSRH-030303-01	N0450(B)	WRG Zonolite Finish Coat	3/18/03
Sierra S Reg HQ Shop	SSRH-030303-02		Not Analyzed	
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-03	N0452(A)	WRG Zonolite Acoustical Plastic	3/18/03
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-03	N0452(B)	WRG Zonolite Finish Coat	3/18/03
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-04		Not Analyzed	
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-05	N0454	No Asbestos	3/18/03
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-06	N0455	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-01	N0444	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-02		Not Analyzed	
OH Close Youth Corr Facility	OHYCF-030303-03	N0446	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-04	N0447	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-05	N0448	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-06		Not Analyzed	
Karl Holton Youth Corr D&A Trtmnt Fac	KHYC-030303-01	N0442	No Asbestos	3/18/03
Karl Holton Youth Corr D&A Trtmnt Fac	KHYC-030303-02		Not Analyzed	
Atascadero Warehouse	ASH-030503-01	N0469	No Asbestos	3/18/03
Atascadero Warehouse	ASH-030503-02	N0470	No Asbestos	3/18/03
Atascadero New Treatment Unit	ASH-030603-01	N0471	WRG Monokote (MK3)	3/18/03
Atascadero New Treatment Unit	ASH-030603-02		Not Analyzed	
Sierra Conservation Center	SCC-AD-A-030503-01		Not Analyzed	
Sierra Conservation Center	SCC-AD-A-030503-02	N0468	WRG Monokote (MK3)	3/18/03
CCI Bldg J	CCI-030503-01	N0473	WRG Monokote (MK3)	3/18/03
CCI Bldg J	CCI-030503-02		Not Analyzed	
CCI Bldg P	CCI-030503-03	N0475	No Asbestos	3/18/03
CCI Bldg P	CCI-030503-04	N0476	No Asbestos	3/18/03
CCI Bldg B	CCI-030503-05	N0477	WRG Monokote (MK3)	3/18/03
CCI Bldg B	CCI-030503-06		Not Analyzed	
CCI Vocational	CCI-030503-07	N0479	No Asbestos	3/18/03
CCI Vocational	CCI-030503-08	N0480	<1% Amosite. No match	3/18/03
Deuel Vocational Institute	DVI-IW-030703-01	N0481	No Match	3/18/03
Deuel Vocational Institute	DVI-IW-030703-02		Not Analyzed	
DMV HQ Sacramento	DMV031203-01	N0496	No Match	3/18/03
Dmv, HQ Sacramento	DMV031203-02	N0497	No Asbestos	3/18/03
Employment Development Annex	EDA-022603-01	N0323	No Asbestos	3/18/03
Employment Development Annex	EDA-022603-02	N0324	No Asbestos	3/18/03
Central Office	CO-022603-01	N0321	(LAYERED) No Asbestos	3/18/03
Central Office	CO-022603-02		Not Analyzed	
Ventura Youth Corr Fac	CYA-01		Not Analyzed	
Ventura Youth Corr Fac	CYA-02	N0409	WRG Monokote (MK3)	3/18/03
LA EDD-S. Broadway	EDD-01	N0406	No Asbestos	3/18/03

Location	Sample ID	MVA-ID	Findings	first reported
LA EDD-S. Broadway	EDD-02		Not Analyzed	
Agricultural Annex	AA-022603-01		Not Analyzed	
Agricultural Annex	AA-022603-02	N0326	No Asbestos	3/18/03
CA Inst. For Women	CAFE#1	N0393	No Asbestos	3/18/03
CA Inst. For Women	CAFE#2	N0394	No Asbestos	3/18/03
CA Inst. For Women	RC Admin #7	N0399	No Asbestos	3/18/03
CA Inst. For Women	WARE#1-#3	N0395	No Asbestos	3/18/03
CA Inst. For Women	WARE#1-#4		Not Analyzed	
CA Inst. For Women	WARE#2-#5	N0397	No Asbestos	3/18/03
CA Inst. For Women	WARE#2-#6		Not Analyzed	

MVA, Inc.

Data Interpretation

Sample ID: MVA5394-N0471

Project: State of California

Location: Atascadero State Hospital

Type: Fireproofing

Construction Date: Not Provided

Product Formula Matched: "Zonolite Monokote (MK-3)"

Manufacturer: W.R. Grace & Company

Constituent Identified	Estimated Weight Percent (Avg)*
Chrysotile	~12%
Vermiculite	~29%
Gypsum + Minor Carbonate	~59%

Comments:

*Estimated weight percent based on light microscopy in conjunction with acid soluble test result.

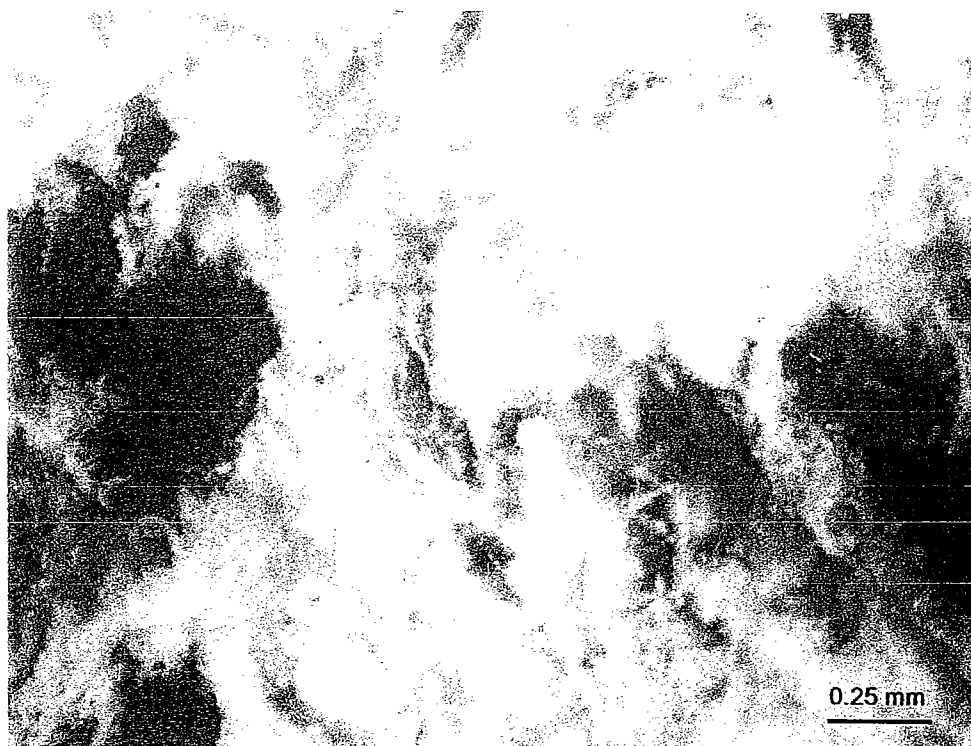
MVA, Inc.**PLM Constituent Analysis****Date:** 3/11/03**MVA #:** 5394**Location:** Atascadero State Hospital
New Treatment Area, W. Corridor**Sample I.D. #:** N0471**Client Sample I.D. #:** ASH-030603-01**Examination using the stereomicroscope:** Off-white powder with brass-colored flakes and white fibers

<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:		Fillers:	
Cotton	---	Binders:		Diatoms	---
Fiberglass		Kaolinite (-)	---	Iron Chromite	---
Filament	---	Montmorillonite (-)	---	Iron Oxide	---
Wool	---	Gypsum	~47	Limestone	*
Mineral Wool	---	Anhydrite	<1	Magnetite	<1
Hair	---	Portland Cement	---	Mica	---
Paper/Wood		Lime (hydrated)	---	Perlite	---
Chem. Proc.	---	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	*	Pumice	---
Synthetic	---	Starch (-)	---	Quartz	<1
				Talc	---
				Vermiculite	~38

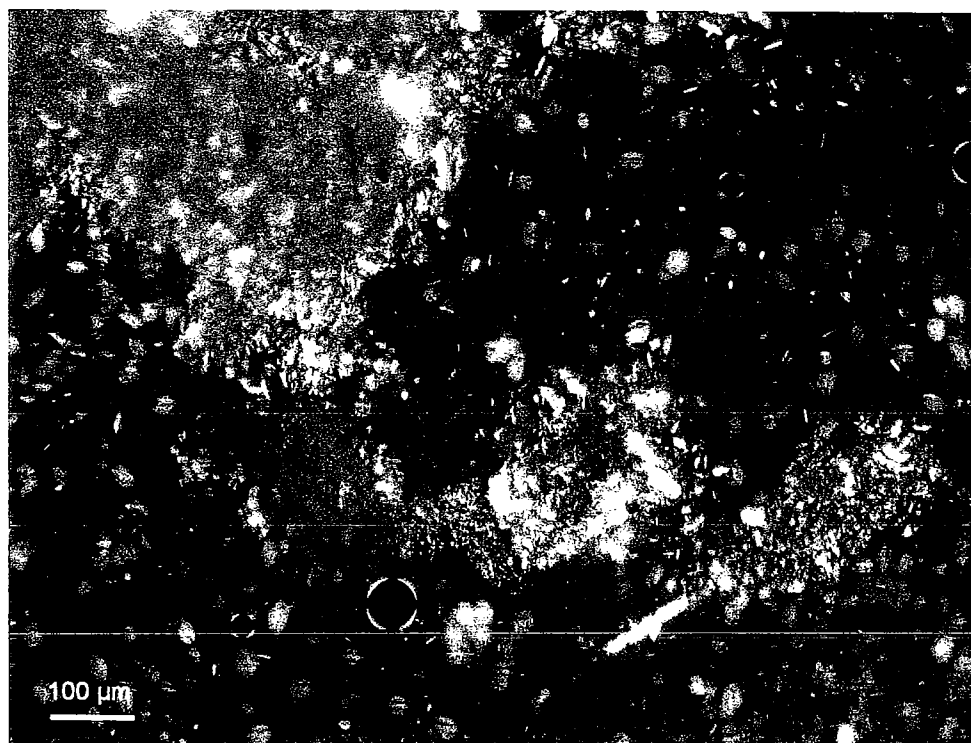
Asbestos Minerals

Chrysotile	~15	Anthophyllite	---	Tremolite/	
Amosite	---	Crocidolite	---	Actinolite	---

Comments:**Analyst:** Randy Boltin



Photomicrograph of MVA5394-N0471.



PLM photomicrograph of MVA5394-N0471.

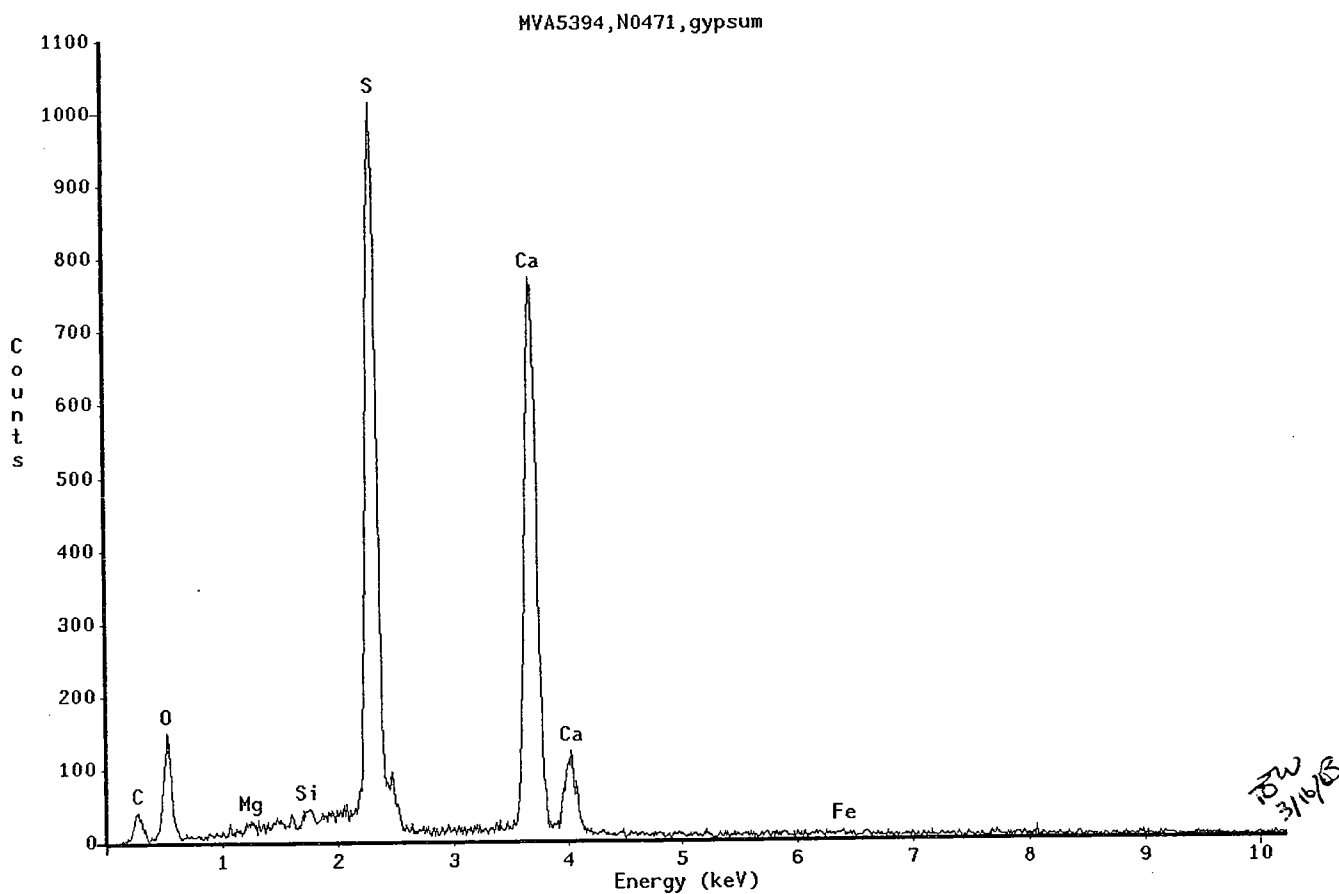
MVA, Inc.**SEM Constituent Analysis****Date:** 3/16/03**MVA #:** 5394

*Particles identified are consistent in morphology and elemental composition with known references.

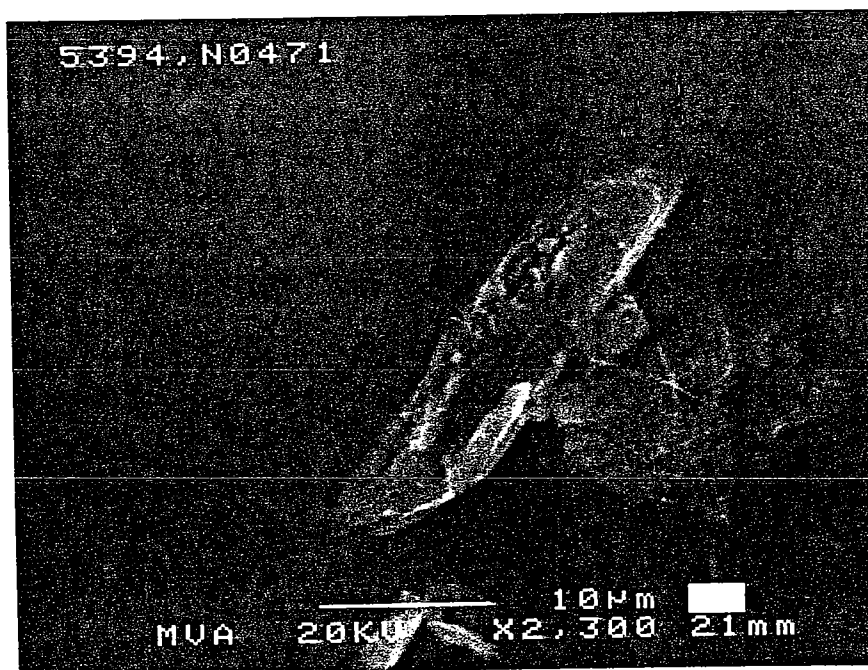
Sample I.D. #: N0471

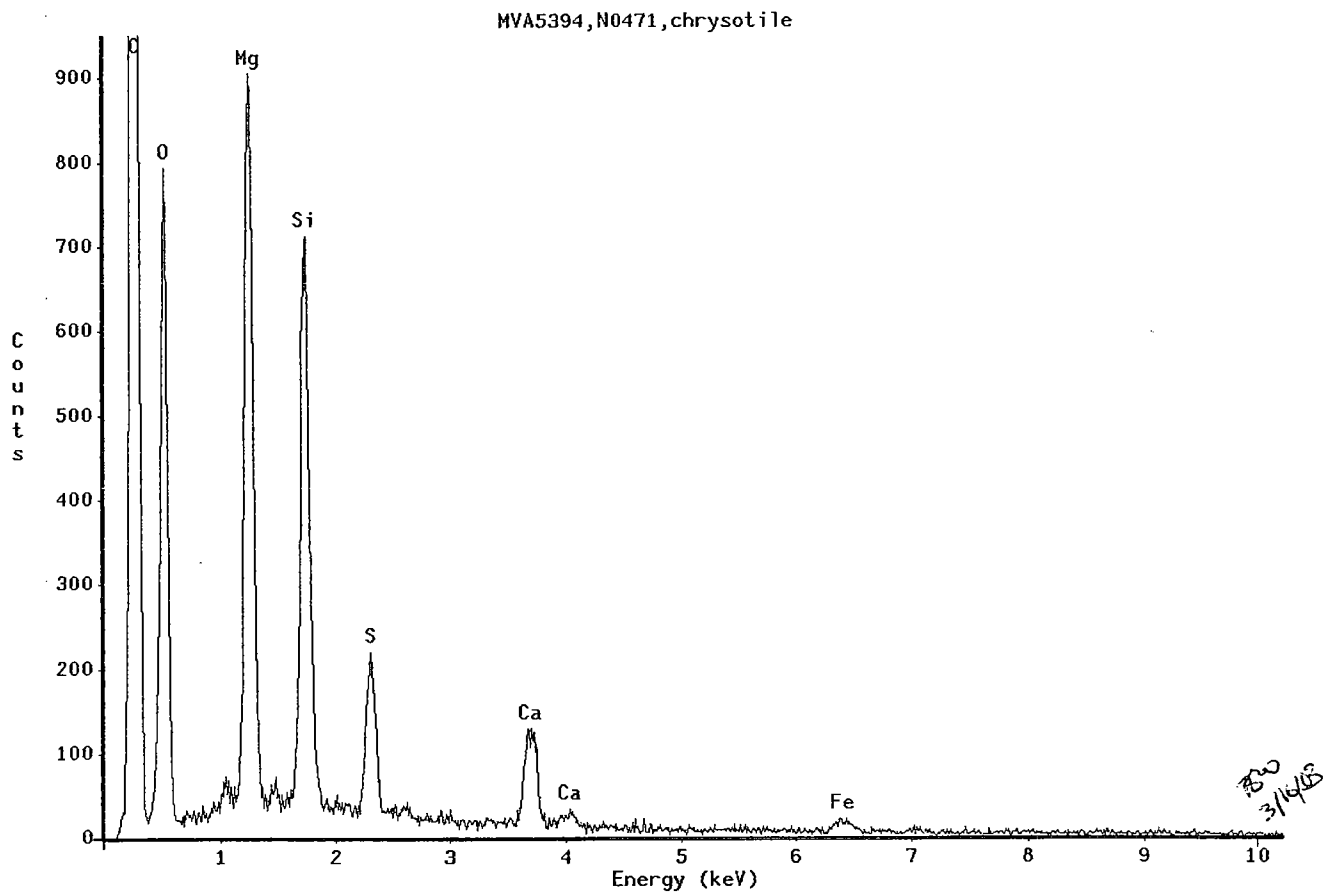
<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass	---	Titanium	---
Mineral Wool	---	Barium	---
Other	---	Zinc	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin	---
Mica	---	Montmorillonite	---
Perlite	---	Other	---
Talc (elong)	---	Ca	---
Talc (platy)	---	Ca-Mg	---
Si	---	Ca-S	Common
Vermiculite	Common	Ca-Si	---
Other	---	Ca-Al-Si	---
Asbestos Minerals:		Ca-Fe-Al-Si	---
Amosite	---	Mg-Fe	---
Anthophyllite	---	Al-Si	---
Chrysotile	Common	Others	---
Crocidolite	---		
Tremolite/Actinolite	---		

Comments:**Microscopist:** Tim B. Vander Wood

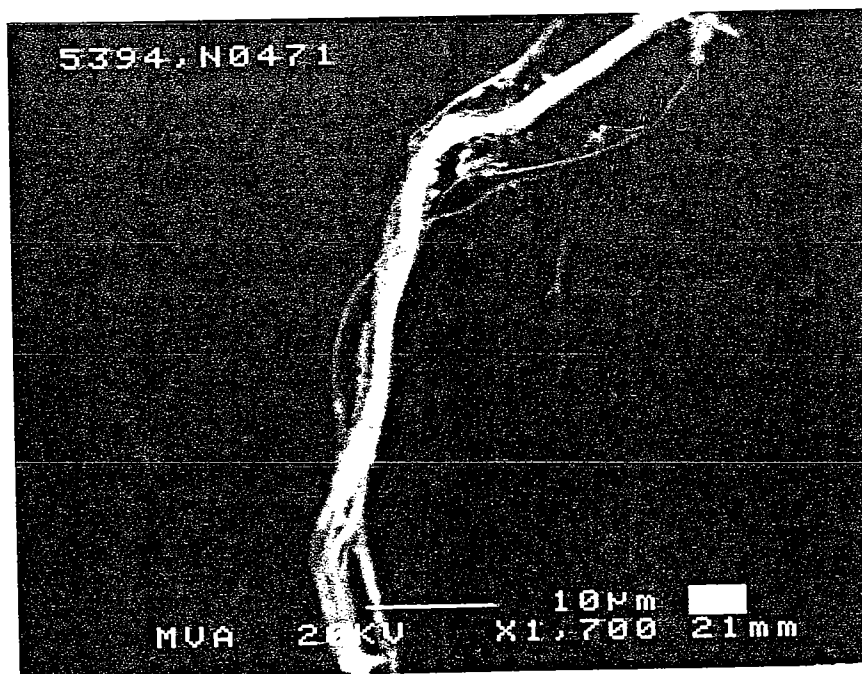


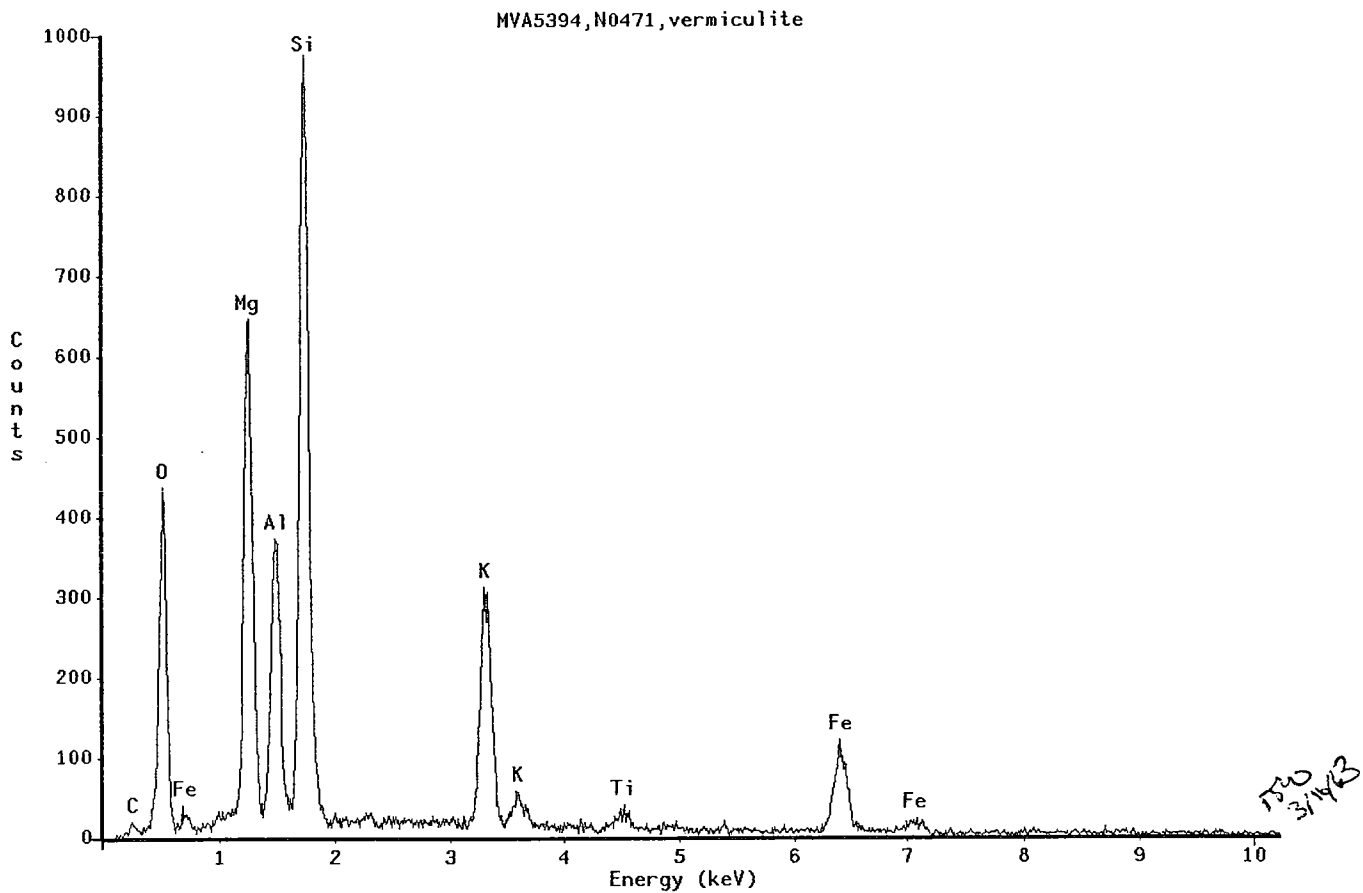
EDS spectrum (above) and SEM micrograph (below) of gypsum.
MVA5394-N0471



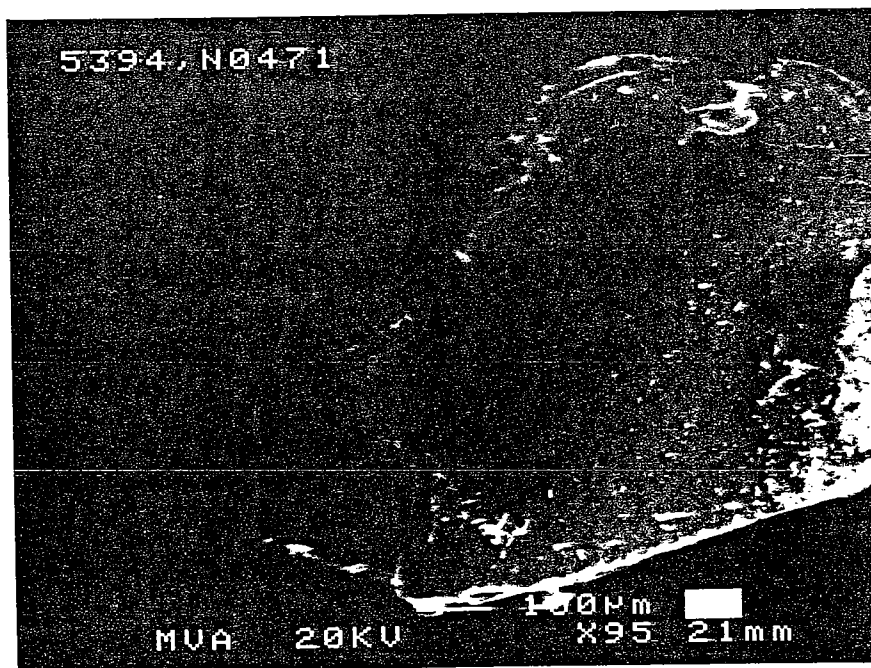


EDS spectrum (above) and SEM micrograph (below) of chrysotile.
MVA5394-N0471





EDS spectrum (above) and SEM micrograph (below) of vermiculite.
MVA5394-N0471



MVA, Inc.**AEM Constituent Analysis****Date:** 3/16/03**MVA #:** 5394**Sample I.D. #:** N0471

<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass fibers	---	TiO ₂	---
Others	---	BaSO ₄	---
		ZnS	---
		Other	---
Fillers:		Binders:	
	---	Clay	
Diatoms	---	Kaolin (xltln)	---
Fe Particle	---	Kaolin (calc.)	---
Mica	---	Smectite	---
Perlite	---	Ca (ppt)	---
Talc (elong)	---	Ca (xltln)	---
Talc (platy)	---	Ca-Mg, particle	---
Quartz	---	Ca-S (ppt)	Common/Minor
Vermiculite	Common	Ca-S (xltln)	---
Other- Platy Mg-Si	Common/Minor	Ca-Si (ppt)	---
Feldspar	Trace	Ca-Si, particle	---
Asbestos Minerals:		Ca-Al-Si	---
Amosite	---	Ca-Fe-Al-Si	---
Anthophyllite	---	Mg-Fe, particle	---
Chrysotile	Common	Mg-S	---
Crocidolite	---	Si (ppt)	---
Tremolite/Actinolite	Trace	Si (xltln)	---
		Others	---

Comments: Platy Mg-Si particles are a probable contaminant of chrysotile.**Analyst:** Randy Boltin

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0471 VERMICULITE

POSSIBLE IDENTIFICATION

CU KA KB LA

SI KA

MG KA

FE KA KB

K KA OR IN LA? LBE

AL KA

TI KA OR BA LA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.925	357	CU LA
2	1.250	3296	MG KA
3	1.486	1109	AL KA
4	1.743	7176	SI KA
5	3.314	1501	K KA OR IN LA?
6	3.670	509	IN LBE
7	4.507	238	TI KA
8	6.391	1614	FE KA
9	7.047	214	FE KB
10	8.023	12508	CU KA
11	8.890	1567	CU KB

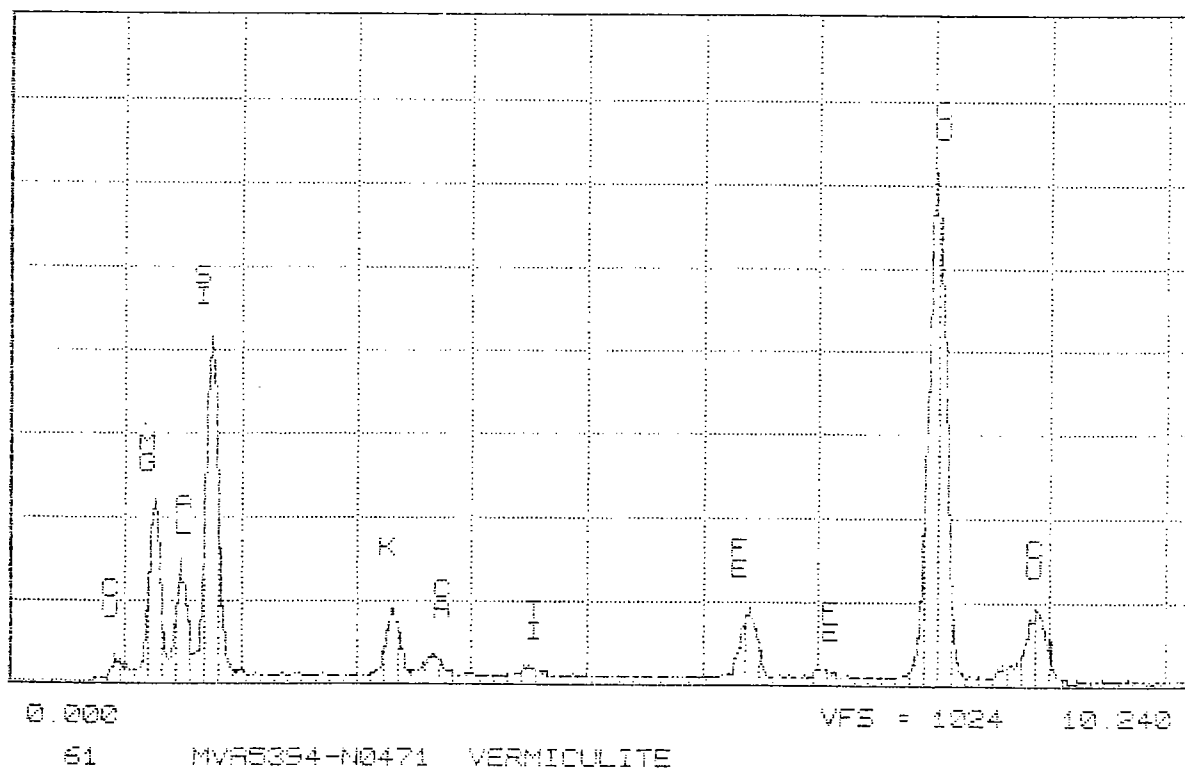
isob
3/16/03

MVA INC.

SUN 16-MAR-03 11:38

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



AEM spectrum of vermiculite.
MVA5394-N0471

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0471 CHRYSOTILE

POSSIBLE IDENTIFICATION

CU KA KB
SI KA
MG KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.250	784	MG KA
2	1.736	866	SI KA
3	8.018	962	CU KA
4	8.929	186	CU KB

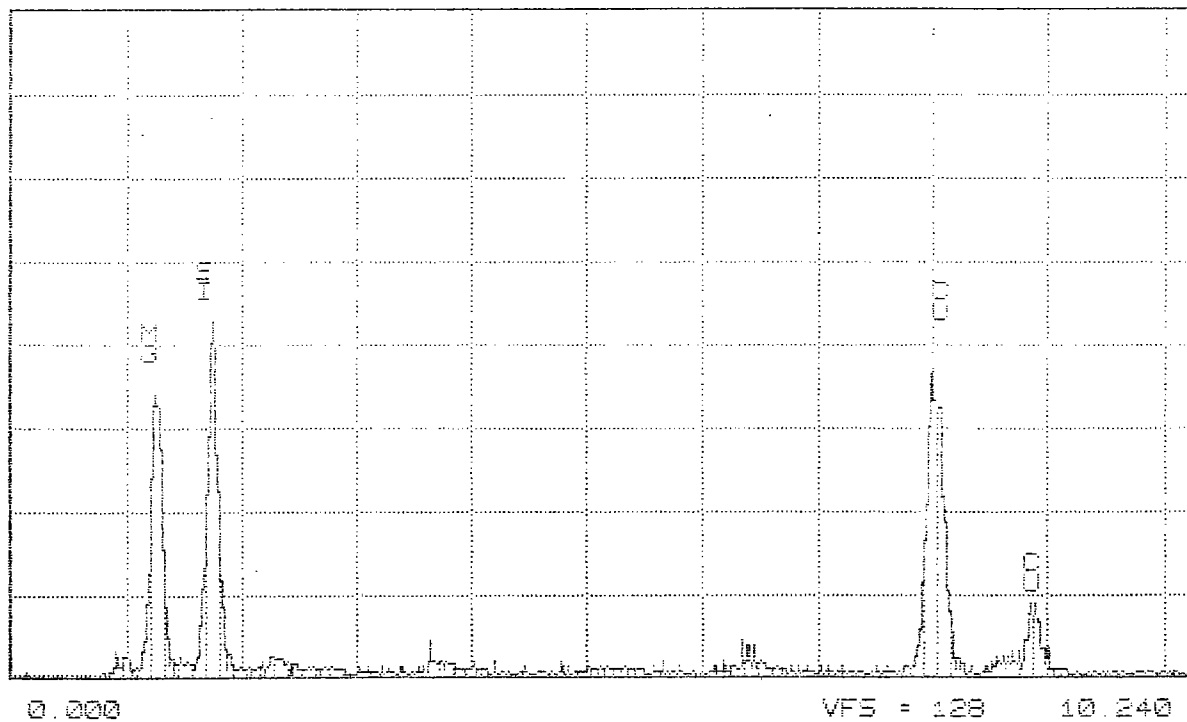
WAB
3/16/03

MVA INC.

SUN 16-MAR-03 11:41

Cursch: 0.000keV = 0

ROI (1) 0 000: 0 000



0.000

VFS = 128

10.240

93

MVA5394-N0471 CHRYSOTILE

AEM spectrum of chrysotile.
MVA5394-N0471

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0471 CA-S PARTICLE

POSSIBLE IDENTIFICATION

CA KA KB
S KA
CU KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	2.311	993	S KA
2	3.690	949	CA KA
3	4.017	82	CA KB
4	8.023	448	CU KA

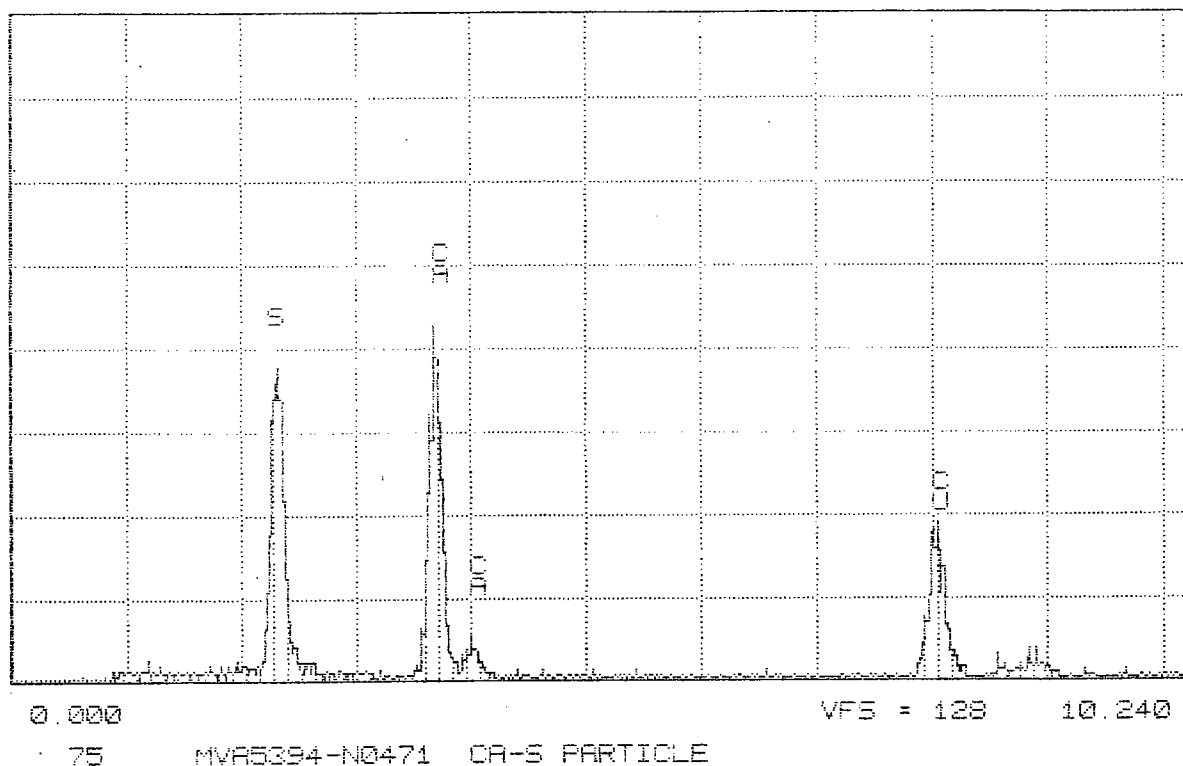
WAB
3/16/03

MVA INC.

SUN 16-MAR-03 11:47

Cursor: @ 000keV = 0

ROI (1) @ 000: 0.000



AEM spectrum of a Ca-S particle.
MVA5394-N0471

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0471 PLATY MG-SI PARTICLE

POSSIBLE IDENTIFICATION

CU KA KB LA
 SI KA
 MG KA
 CA KA
 S KA
 FE KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.327	301	CU LA
2	1.252	5623	Mg KA
3	1.741	6488	SI KA
4	2.306	1169	S KA
5	2.690	1366	CA KA
6	6.388	355	FE KA
7	8.025	10586	CU KA
8	8.334	1251	CU KB

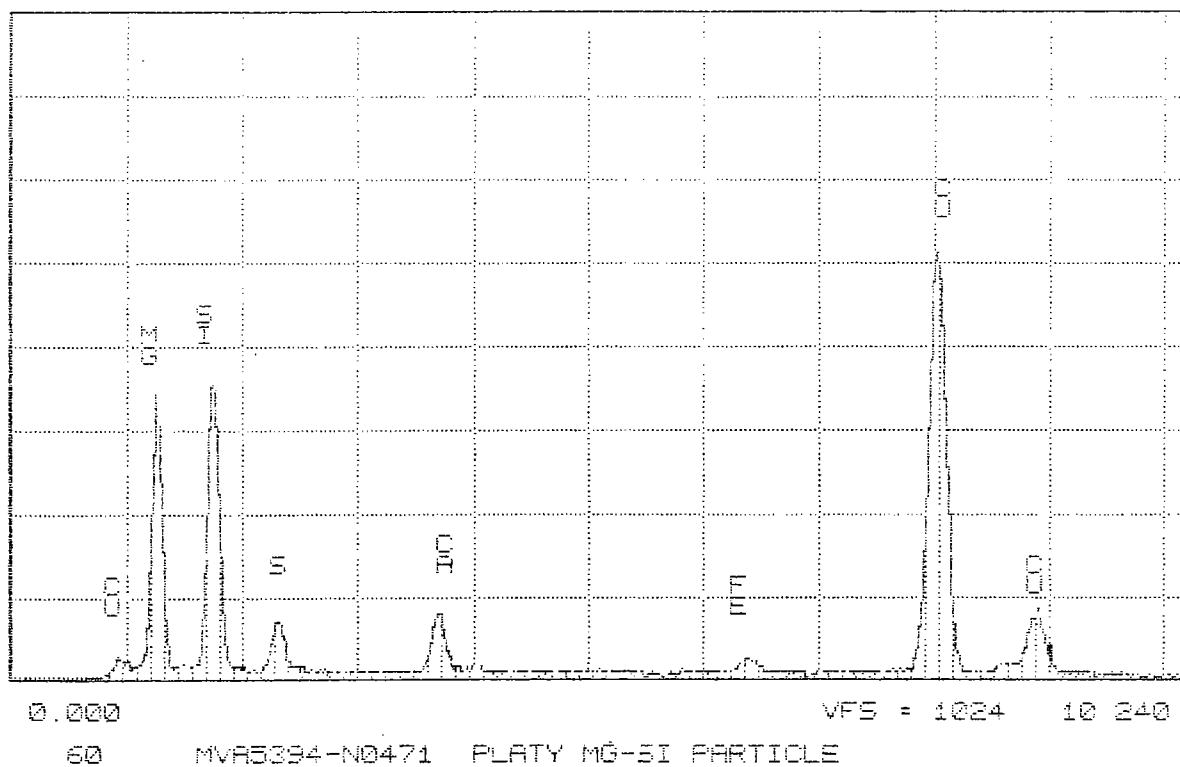
WAG
 3/16/03

MVR INC.

SUN 16-MAR-03 11:44

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.200



AEM spectrum of a platy Mg-Si particle.
 MVA5394-N0471

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0471 ALKALI FELDSPAR

POSSIBLE IDENTIFICATION

SI KA

K KA OR IN LA?

CU KA

AL KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.475	296	AL KA
2	1.743	1322	SI KA
3	3.317	318	K KA OR IN LA?
4	8.028	312	CU KA

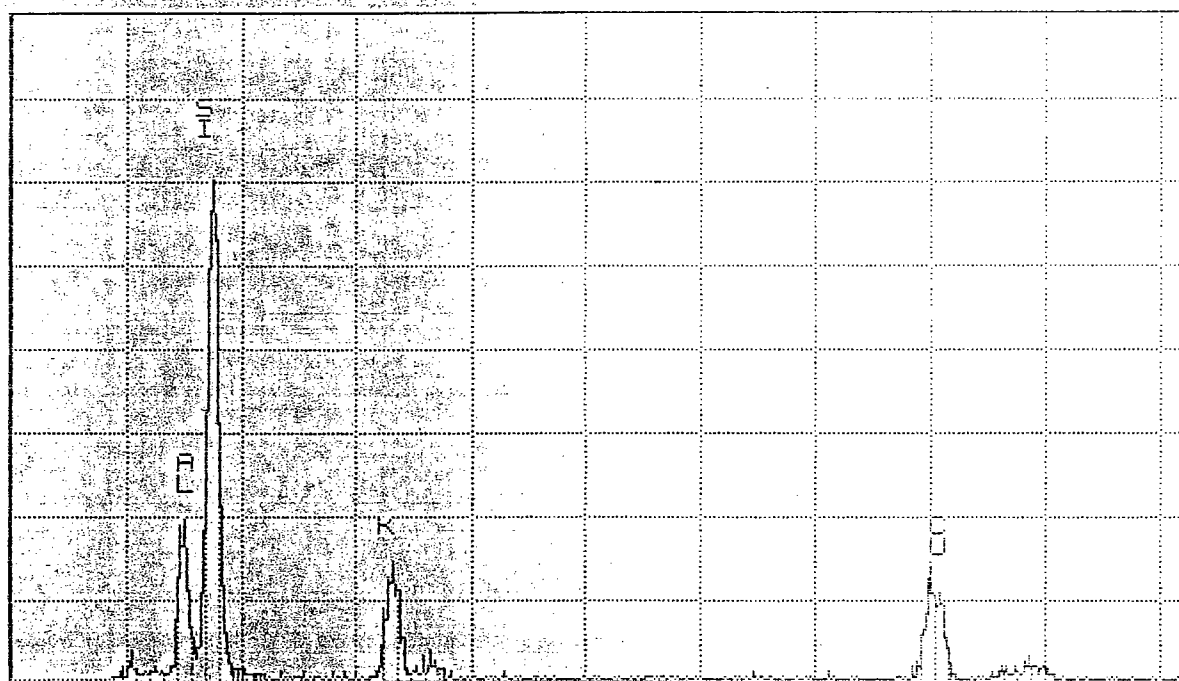
WMS
3/16/03

MVA INC.

SLIN 16-MAR-03 11:57

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



0.000

VFS = 128

10.240

60

MVA5394-N0471 ALKALI FELDSPAR

AEM spectrum of alkali feldspar.
MVA5394-N0471

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0471 TREMOLITE-ACTINOLITE FIBER

POSSIBLE IDENTIFICATION

CU KA KB LA
 SI KA
 MG KA
 CA KA KB
 FE KA
 K KA OR IN LA?

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.951	290	CU LA
2	1.254	2355	MG KA
3	1.741	7267	SI KA
4	3.315	147	K KA OR IN LA?
5	3.688	1212	CA KA
6	4.015	129	CA KB
7	6.385	717	FE KA
8	8.024	11777	CU KA
9	8.886	1708	CU KB

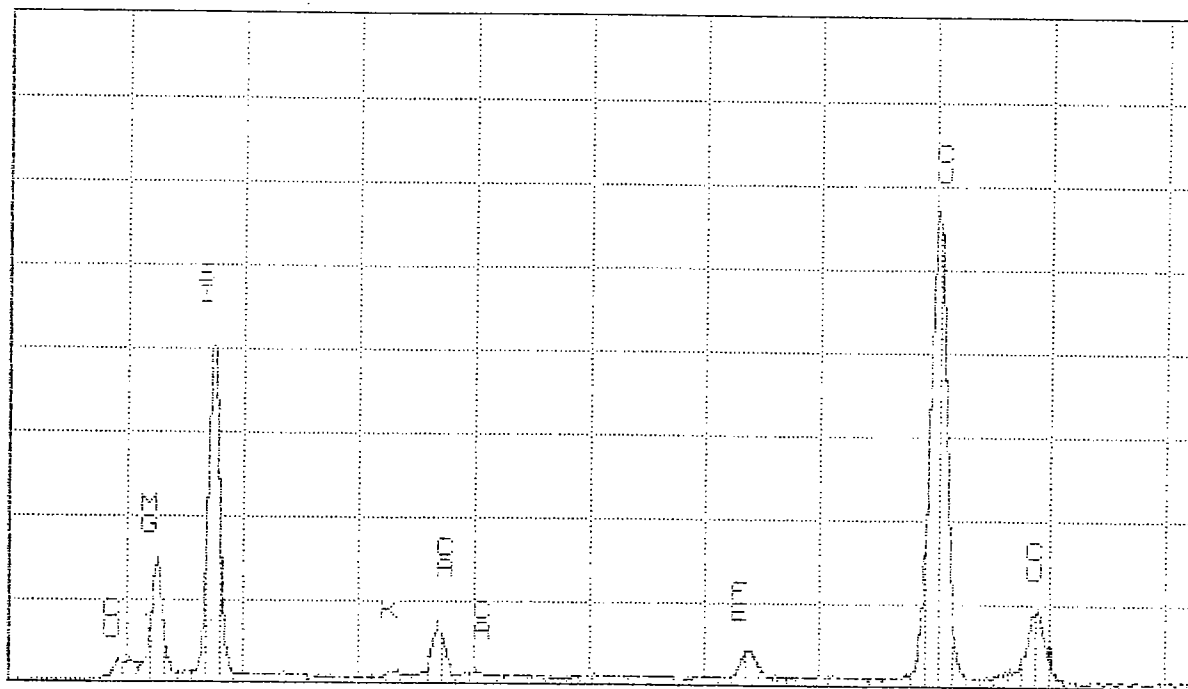
WMA
 3/16/03

MVA INC.

SUN 16-MAR-03 12:04

Cursch: 0.000keV = 0

ROI (1) 0.000: 0.000



0.200

VFS = 1024 10.240

75

MVA5394-N0471 TREMOLITE-ACTINOLITE FIBER

AEM spectrum of a tremolite-actinolite fiber.
 MVA5394-N0471

MVA, Inc.

Acid Soluble Weight Percent Determination

Date: 3/11/03

MVA#: 5394

Sample I.D.#: N0471

Initial Weights

1.	Vial w/lid	4.75751
2.	Vial + Sample	5.01915
3.	Sample Weight (S2-S1)	0.26164
4.	Filter (in container)	10.06701

Weights Following Acid Treatment

5.	Filter + Sample	10.17512
6.	Insoluble Residue (S5-S4)	0.10811
7.	Soluble Fraction (S3-S6)	0.15353

Calculation

8.	% Soluble (S7/S3) x 100%	~59%
----	--------------------------	------

Comments:

Analyst: William L. Turner, Jr.

Asbestos Constituent Analysis

MVA Project No. 5394

W.R. Grace Claim #10651

DGS Claim #1011574

**Building Address:
1234 E. Shaw Ave., Fresno**

Prepared by:

**Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, 4th Floor
West Sacramento, CA 95605**



28 March 2003

Mr. Dan Hood, Project Manager
Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, Suite 4-430
West Sacramento, CA 95605

Re: Asbestos Constituent Analysis; MVA Project No. 5394

Dear Mr. Hood:

Enclosed is MVA, Inc.'s Report of Results of our analyses of samples we have received from you for identification of product manufacturer.

Thank you for consulting MVA, Inc. If you have any questions about this report, please do not hesitate to call either of us at 770-662-8509, or by email at tvanderwood@mva-inc.com. We will retain your samples for thirty days prior to disposing of them.

Sincerely,

A handwritten signature in black ink, appearing to read "Randy Boltin".

Randy Boltin
Senior Research Scientist

A handwritten signature in black ink, appearing to read "Tim B. Vander Wood".

Tim B. Vander Wood, Ph.D.
Executive Director

Report of Results: MVA5394
Asbestos Constituent Analysis

Prepared for:

**Department of General Services
Real Estate Services Division
Professional Services Branch
707 3rd Street, Suite 4-430
West Sacramento, CA 95605**

Prepared by:

**MVA, Inc.
5500 Oakbrook Parkway, Suite 200
Norcross, GA 30093**

28 March 2003

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5500 Oakbrook Parkway #200
Norcross, GA 30093
770-662-8509 • FAX 770-662-8532
www.mvainc.com

Report of Results: MVA5394
Asbestos Constituent Analysis

Introduction

The samples were first examined by polarized light microscopy (PLM) including microchemical tests. If necessary, the samples were further analyzed by scanning electron microscopy (SEM) combined with energy dispersive x-ray spectrometry (EDS), and by analytical electron microscopy (AEM) utilizing EDS and/or selected area electron diffraction (SAED). Wet chemistry was also performed on certain samples to determine a soluble weight percent.

Product formula matches were derived from comparison between determined sample composition and available product formulas. In any case where more than one product formula matched the determined composition, each match was noted. If no available product formula matched the determined sample composition, a 'no match' was indicated.

Results

Product formula matches are noted in Table 1 on the following page. Table 2 contains MVA sample number assignments and additional details of the analytical results from these samples as well as the samples previously submitted. An appendix containing all of the analytical results not previously forwarded follows.

TABLE 1. Product Formula Matching Results

The following samples were a positive match for W.R. Grace's Monokote (MK-3):

OB8-022603-01	OB9-0220603-02
ASH-030603-01	SCC-AD-A-030503-02
CCI-030503-01	CCI-030503-05
CYA-02	

The following samples were a positive match for W.R. Grace's Zonolite Acoustical Plastic:

SSRH030303-01 Layer A	SSRH-030303-03 Layer A
-----------------------	------------------------

The following samples were a positive match for W.R. Grace's Zonolite Finish Coat:

SSRH030303-01 Layer B	SSRH-030303-03 Layer B
-----------------------	------------------------

The following sample was a positive match for U.S. Gypsum's Imperial QT Texture Finish:

PH-RES-030403-02

Table 2. Detailed Sample Descriptions

Location	Sample ID	MVA-ID	Findings	first reported
120 Spring St	120-1-01	5394-N0034	No Asbestos	2/27/03
120 Spring St	120-1-02	5394-N0036	No Asbestos	2/27/03
2501 Harbor Blvd.	3234-1-03	5394-N0044	WRG Zonolite Acoustical Plastic	2/27/03
2501 Harbor Blvd.	3265-1-01	5394-N0042	No match	2/27/03
2501 Harbor Blvd.	3277-2-05	5394-N0046	No Asbestos	2/27/03
28 Civic Center Plaza	28-1-01	5394-N0038	WRG Monokote (MK3)	2/27/03
28 Civic Center Plaza	28-2-03	5394-N0040	No ID-Inhomogeneous	2/27/03
7650 S. Newcastle DSA 1023	1023-1-8-03-AT-1	5394-N0028	WRG Monokote (MK3)	2/27/03
7650 S. Newcastle DSA 969	969-1-8-03-AT-1	5394-N0026	WRG Monokote (MK3)	2/27/03
7650 S. Newcastle DSA 969	969-1-8-03-FP-1	5394-N0024	WRG Monokote (MK3)	2/27/03
Agricultural Annex	AA-022603-01		Not Analyzed	
Agricultural Annex	AA-022603-02	N0326	No Asbestos	3/18/03
DMV HQ Bldg East DSA 3671	3671-FP-1803-01	5394-N0030	No Match	2/27/03
DMV HQ Bldg East DSA 3671	3671-FP-1803-02		Not Analyzed	
OB8	OB8-022603-01	N0327	WRG Monokote (MK3)	3/18/03
OB8	OB8-022603-02		Not Analyzed	
OB9	OB9-022603-01		Not Analyzed	
OB9	OB9-022603-02	N0320	WRG Monokote (MK3)	3/18/03
Resources Bldg DSA 5	5-FP-1803-01	5394-N0032	WRG Monokote (MK3)	2/27/03
Stockton OB DSA 901	34-1-8-03-AT-1	5394-N0020	USG Audicote	1/13/03
Stockton OB DSA 901	34-1-8-03-FP-1	5394-N0022	WRG Monokote (MK3)	2/27/03
Patton State Hospital	Admin #3	N0402	No Asbestos	3/18/03
Patton State Hospital	Admin #4	N0403	No Asbestos	3/18/03
Patton State Hospital	Admin Annex#1	N0400	No Asbestos	3/18/03
Patton State Hospital	Admin Annex#2	N0401	No Asbestos	3/18/03
Patton State Hospital	Audit#5	N0404	No Asbestos	3/18/03
Patton State Hospital	Audit#6	N0405	No Asbestos	3/18/03
DFA HQ	FA-031303-01	N0498	No Asbestos	3/18/03
DFA HQ	FA-031303-02	N0499	No Asbestos	3/18/03
Napa State Hospital	NSH-258-030303-01		Not Analyzed	
Napa State Hospital	NSH-258-030303-02	N0431	No Asbestos	3/18/03
Napa State Hospital	NSH-168-030303-01	N0432	No Asbestos	3/18/03
Napa State Hospital	NSH-168-030303-02		Not Analyzed	
Peddler Hills	PH-DORM-030403-01	N0434	No Match	3/18/03
Peddler Hills	PH-DORM-030403-02		Not Analyzed	
Peddler Hills	PH-RES-030403-01		Not Analyzed	
Peddler Hills	PH-RES-030403-02	N0437	USG Imperial QT Texture Finish	3/18/03
Northern Youth Corr Rec Center	NYCRC-MW-030403-01	N0438	No Asbestos	3/18/03
Northern Youth Corr Rec Center	NYCRC-MW-030403-02		Not Analyzed	
CHP Training Center	CHP-MPC-030403-01		Not Analyzed	
CHP Training Center	CHP-MPC-030403-02	N0441(A)	No asbestos	3/18/03
CHP Training Center	CHP-MPC-030403-02	N0441(B)	Insufficient sample	3/18/03

Location	Sample ID	MVA-ID	Findings	first reported
Stockton Facility	SF-030403-01	N0458	No Match	3/18/03
Stockton Facility	SF-030403-02		Not Analyzed	
Stockton Facility	SF-030403-03	N0456	No Asbestos	3/18/03
Stockton Facility	SF-030403-04		Not Analyzed	
Sierra S Reg HQ Shop	SSRH-030303-01	N0450(A)	WRG Zonolite Acoustical Plastic	3/18/03
Sierra S Reg HQ Shop	SSRH-030303-01	N0450(B)	WRG Zonolite Finish Coat	3/18/03
Sierra S Reg HQ Shop	SSRH-030303-02		Not Analyzed	
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-03	N0452(A)	WRG Zonolite Acoustical Plastic	3/18/03
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-03	N0452(B)	WRG Zonolite Finish Coat	3/18/03
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-04		Not Analyzed	
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-05	N0454	No Asbestos	3/18/03
Sierra S Reg HQ Warehouse & Offices	SSRH-030303-06	N0455	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-01	N0444	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-02		Not Analyzed	
OH Close Youth Corr Facility	OHYCF-030303-03	N0446	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-04	N0447	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-05	N0448	No Asbestos	3/18/03
OH Close Youth Corr Facility	OHYCF-030303-06		Not Analyzed	
Karl Holton Youth Corr D&A Trtmnt Fac	KHYC-030303-01	N0442	No Asbestos	3/18/03
Karl Holton Youth Corr D&A Trtmnt Fac	KHYC-030303-02		Not Analyzed	
Atascadero Warehouse	ASH-030503-01	N0469	No Asbestos	3/18/03
Atascadero Warehouse	ASH-030503-02	N0470	No Asbestos	3/18/03
Atascadero New Treatment Unit	ASH-030603-01	N0471	WRG Monokote (MK3)	3/18/03
Atascadero New Treatment Unit	ASH-030603-02		Not Analyzed	
Sierra Conservation Center	SCC-AD-A-030503-01		Not Analyzed	
Sierra Conservation Center	SCC-AD-A-030503-02	N0468	WRG Monokote (MK3)	3/18/03
CCI Bldg J	CCI-030503-01	N0473	WRG Monokote (MK3)	3/18/03
CCI Bldg J	CCI-030503-02		Not Analyzed	
CCI Bldg P	CCI-030503-03	N0475	No Asbestos	3/18/03
CCI Bldg P	CCI-030503-04	N0476	No Asbestos	3/18/03
CCI Bldg B	CCI-030503-05	N0477	WRG Monokote (MK3)	3/18/03
CCI Bldg B	CCI-030503-06		Not Analyzed	
CCI Vocational	CCI-030503-07	N0479	No Asbestos	3/18/03
CCI Vocational	CCI-030503-08	N0480	<1% Amosite. No match	3/18/03
Deuel Vocational Institute	DVI-IW-030703-01	N0481	No Match	3/18/03
Deuel Vocational Institute	DVI-IW-030703-02		Not Analyzed	
DMV HQ Sacramento	DMV031203-01	N0496	No Match	3/18/03
Dmv, HQ Sacramento	DMV031203-02	N0497	No Asbestos	3/18/03
Employment Development Annex	EDA-022603-01	N0323	No Asbestos	3/18/03
Employment Development Annex	EDA-022603-02	N0324	No Asbestos	3/18/03
Central Office	CO-022603-01	N0321	(LAYERED) No Asbestos	3/18/03
Central Office	CO-022603-02		Not Analyzed	
Ventura Youth Corr Fac	CYA-01		Not Analyzed	
Ventura Youth Corr Fac	CYA-02	N0409	WRG Monokote (MK3)	3/18/03
LA EDD-S. Broadway	EDD-01	N0406	No Asbestos	3/18/03

Location	Sample ID	MVA-ID	Findings	first reported
LA EDD-S. Broadway	EDD-02		Not Analyzed	
Agricultural Annex	AA-022603-01		Not Analyzed	
Agricultural Annex	AA-022603-02	N0326	No Asbestos	3/18/03
CA Inst. For Women	CAFE#1	N0393	No Asbestos	3/18/03
CA Inst. For Women	CAFE#2	N0394	No Asbestos	3/18/03
CA Inst. For Women	RC Admin #7	N0399	No Asbestos	3/18/03
CA Inst. For Women	WARE#1-#3	N0395	No Asbestos	3/18/03
CA Inst. For Women	WARE#1-#4		Not Analyzed	
CA Inst. For Women	WARE#2-#5	N0397	No Asbestos	3/18/03
CA Inst. For Women	WARE#2-#6		Not Analyzed	

MVA, Inc.
Data Interpretation

Sample ID: MVA5394-N0450(A), -N0452(A)

Project: State of California

Location: Sierra South Region Headquarters

Type: Fireproofing

Construction Date: Not Provided

Product Formula Matched: "Zonolite Acoustical Plastic"

Manufacturer: W.R. Grace & Company

Constituent Identified	Estimated Weight Percent (Avg)*
Chrysotile	~14%
Vermiculite + Montmorillonite	~86%

Comments:

*Estimated weight percent based on light microscopy in conjunction with acid soluble test result.

MVA, Inc.

PLM Constituent Analysis

Date: 3/9/03

MVA #: 5394

Location: Sierra South Region Headquarters,
Automotive Repair Shop, 2nd Floor,
NW Corner

Sample I.D. #: N0450(A)

Client Sample I.D. #: SSRH-030303-01

Examination using the stereomicroscope: Layered sample: layer (A) is a brown flaky material with fibers

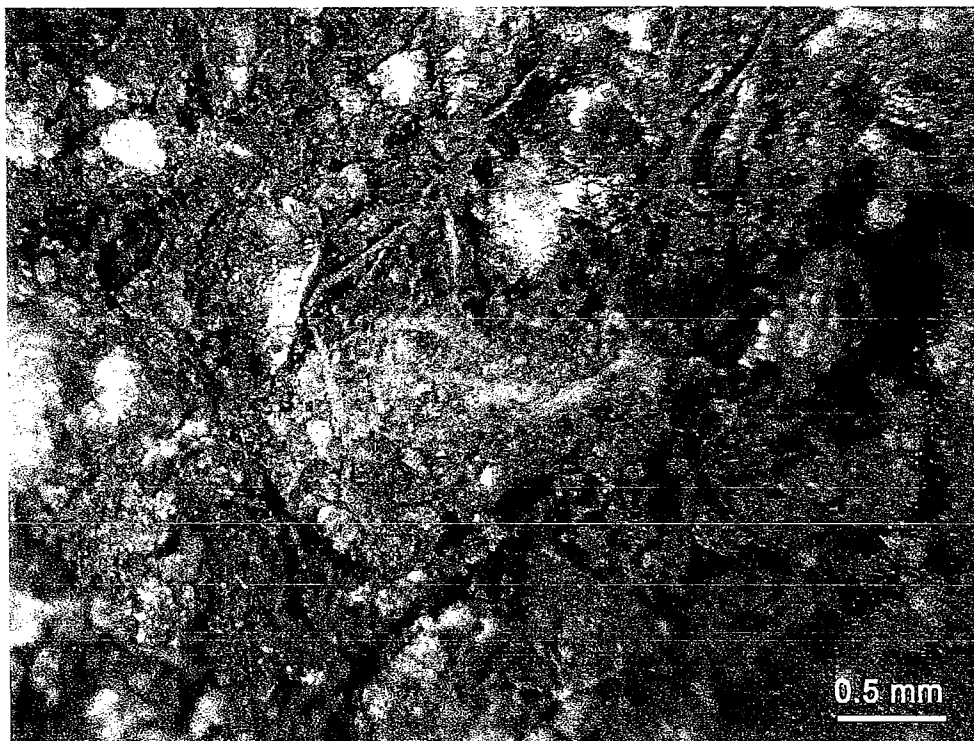
<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:	---	Fillers:	
Cotton	---	Binders:		Diatoms	---
Fiberglass		Kaolinite (*)	*	Iron Chromite	---
Filament	---	Montmorillonite (*)	*	Iron Oxide	---
Wool	---	Gypsum	---	Limestone	---
Mineral Wool	---	Anhydrite	---	Magnetite	---
Hair	---	Portland Cement	---	Mica	---
Paper/Wood		Lime (hydrated)	---	Perlite	---
Chem. Proc.	---	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	<1	Pumice	---
Synthetic	---	Starch (-)	---	Quartz	<1
				Talc	---
				Vermiculite	~88
				Clinopyroxene	<1

Asbestos Minerals

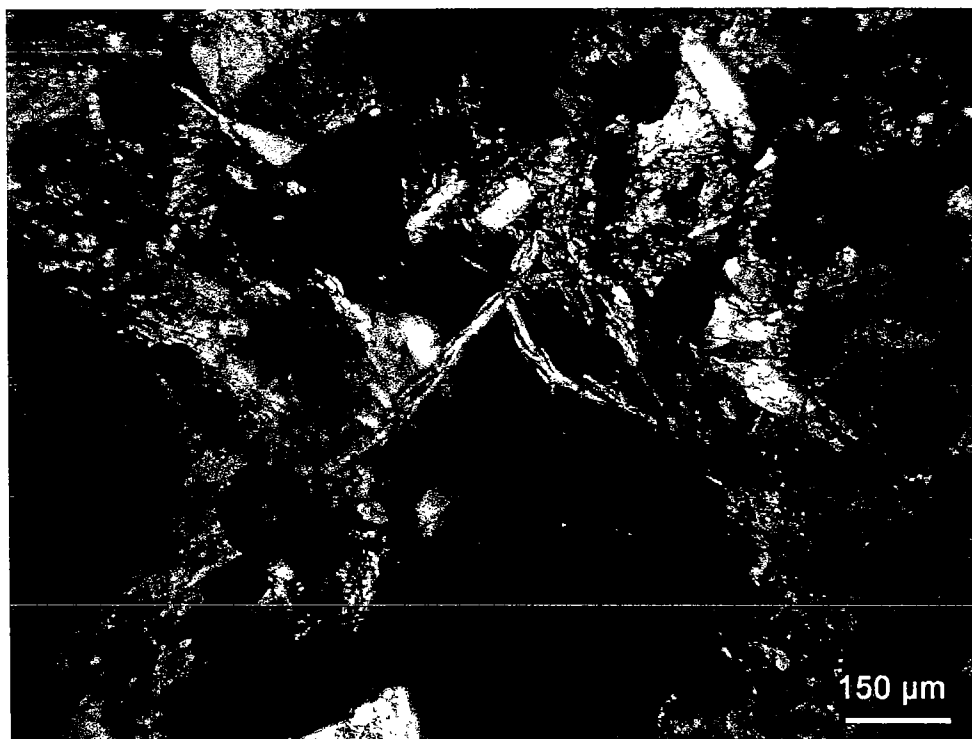
Chrysotile	~12	Anthophyllite	---	Tremolite/	
Amosite	---	Crocidolite	---	Actinolite	---

Comments: Only layer (A) is considered in this analysis. *The presence of kaolinite is indicated by microchemical testing. Montmorillonite may be present but could not be confirmed.

Analyst: Randy Boltin



Photomicrograph of MVA5394-N0450(A).



PLM photomicrograph of MVA5394-N0450(A).

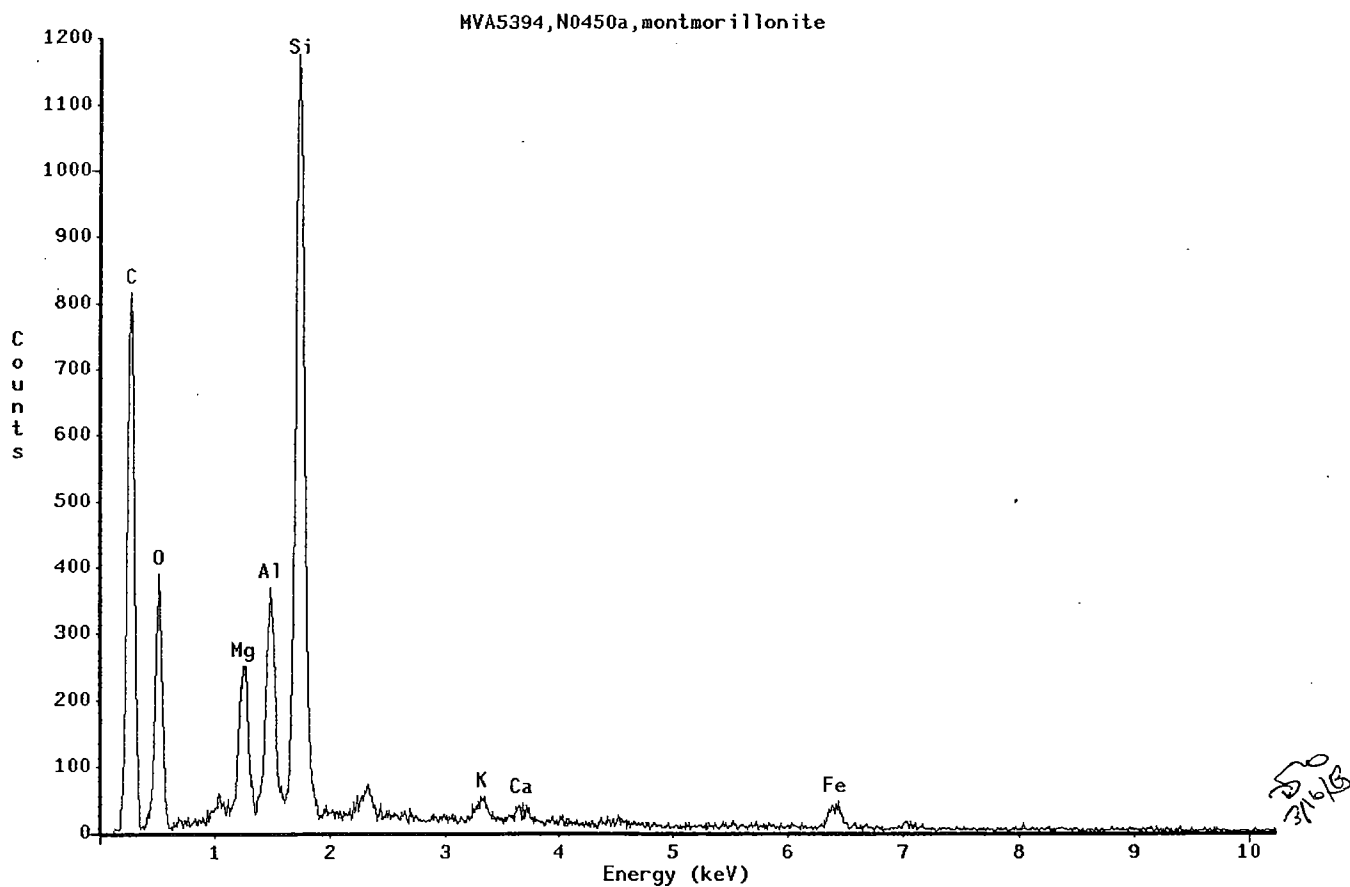
MVA, Inc.**SEM Constituent Analysis****Date:** 3/16/03**MVA #:** 5394

*Particles identified are consistent in morphology and elemental composition with known references.

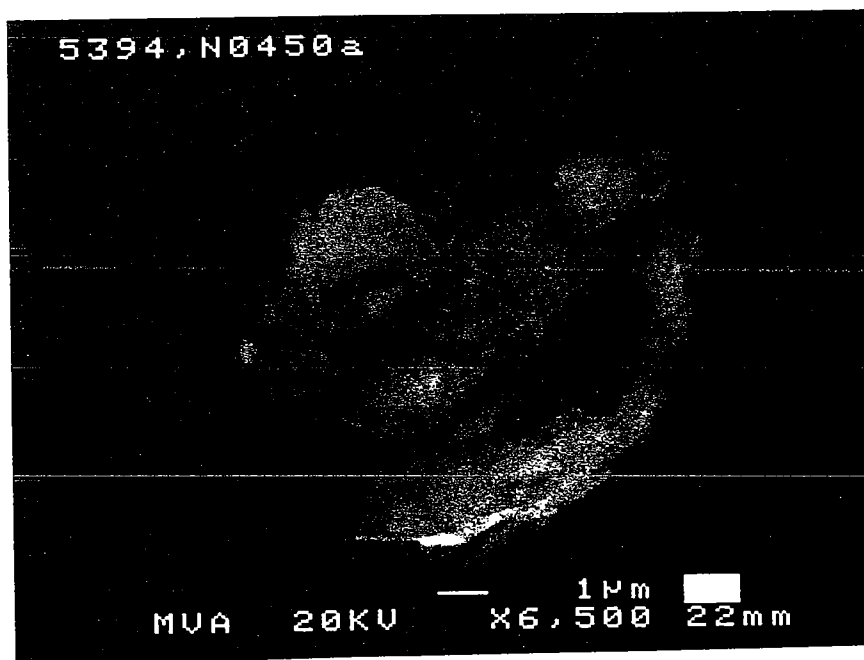
Sample I.D. #: N0450(A)

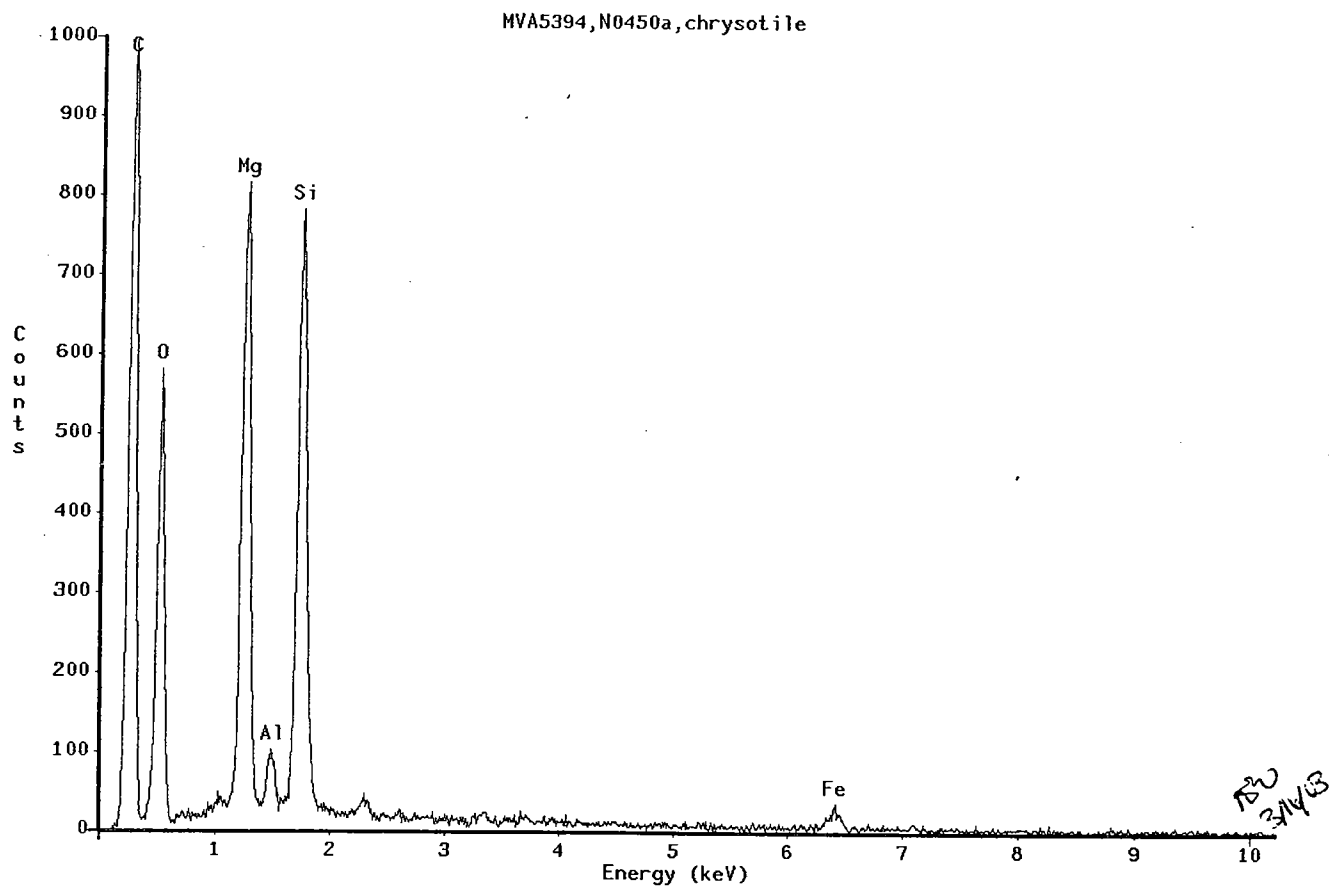
<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass	---	Titanium	---
Mineral Wool	---	Barium	---
Other	---	Zinc	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin	---
Mica	---	Montmorillonite	Common
Perlite	---	Other	---
Talc (elong)	---	Ca	---
Talc (platy)	---	Ca-Mg	---
Si	---	Ca-S	---
Vermiculite	Common	Ca-Si	---
Other	---	Ca-Al-Si	---
Asbestos Minerals:		Ca-Fe-Al-Si	---
Amosite	---	Mg-Fe	---
Anthophyllite	---	Al-Si	---
Chrysotile	Common	Others	---
Crocidolite	---		
Tremolite/Actinolite	---		

Comments:**Microscopist:** Tim B. Vander Wood

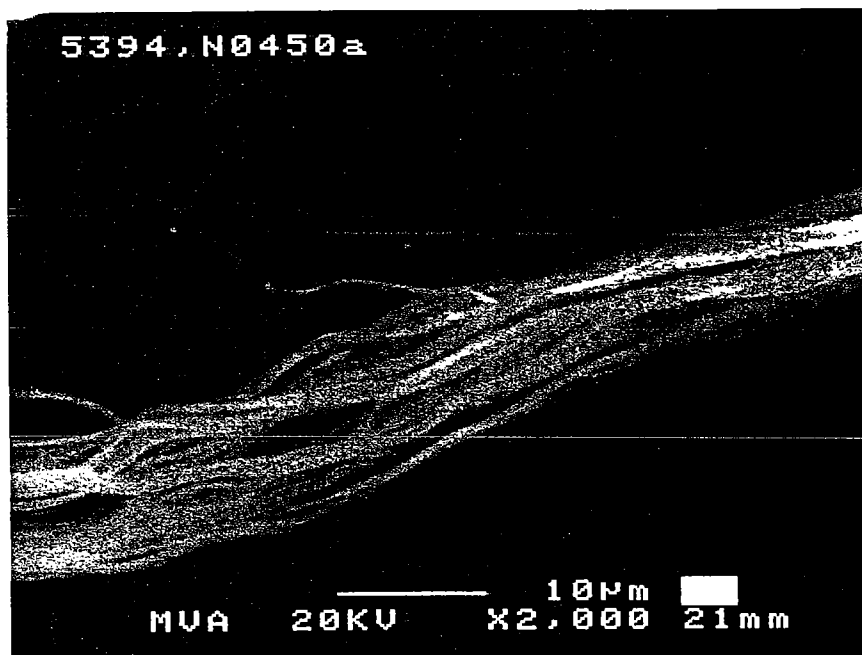


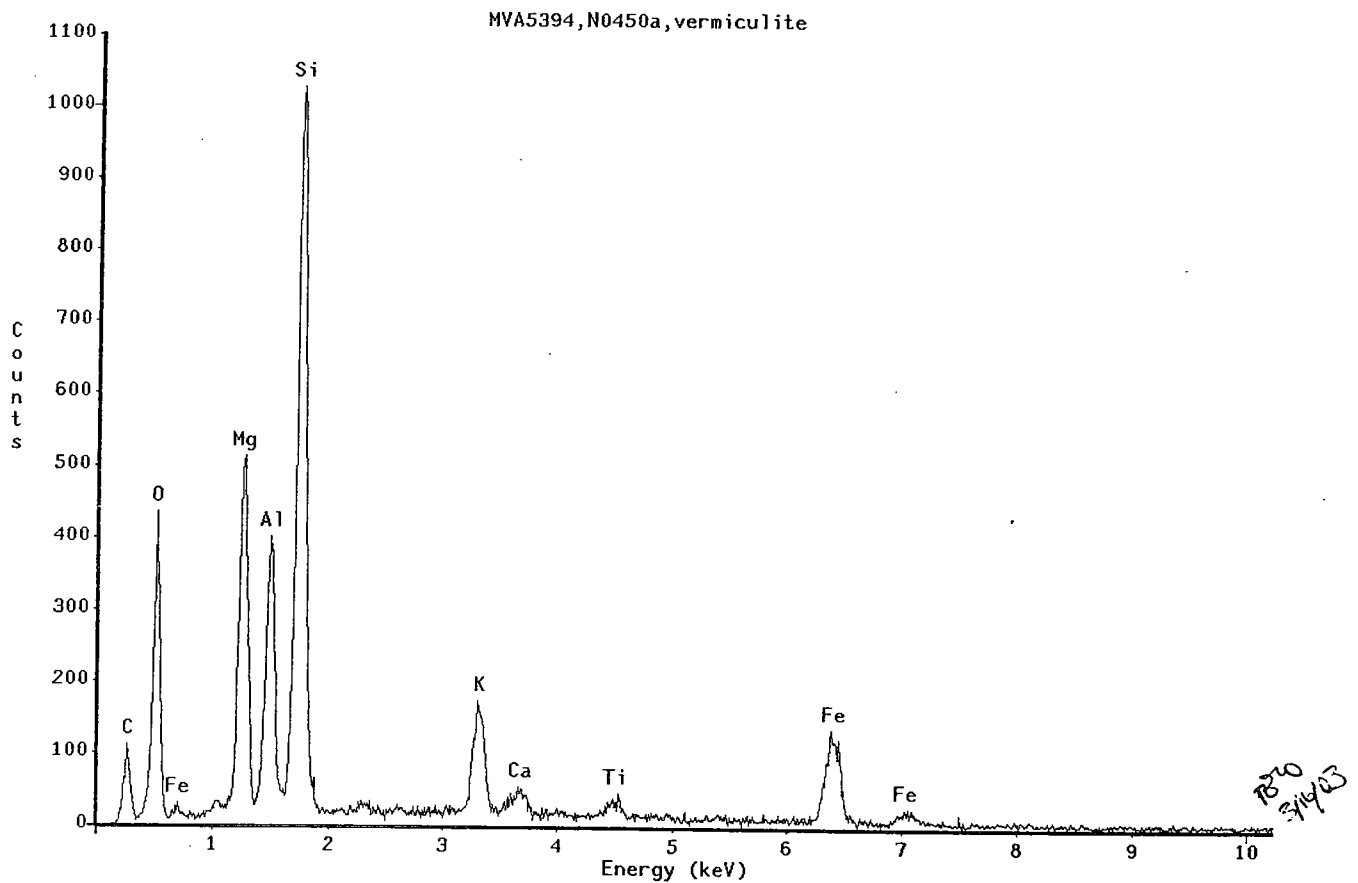
EDS spectrum (above) and SEM micrograph (below) of montmorillonite.
MVA5394-N0450(A)



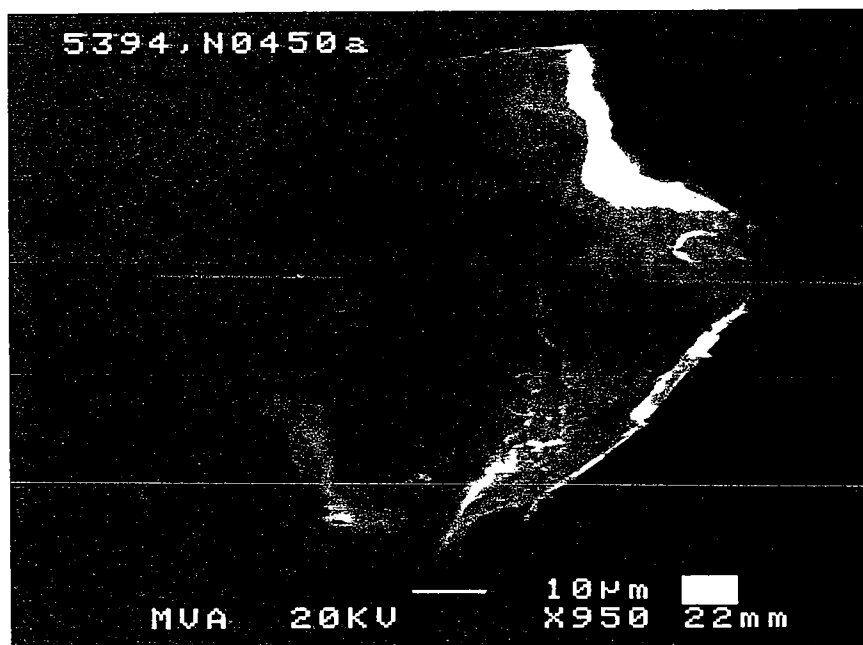


EDS spectrum (above) and SEM micrograph (below) of chrysotile.
MVA5394-N0450(A)





EDS spectrum (above) and SEM micrograph (below) of vermiculite.
MVA5394-N0450(A)



MVA, Inc.**AEM Constituent Analysis****Date:** 3/12/03**MVA #:** 5394**Sample I.D. #:** N0450(A)

<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass fibers	---	TiO ₂	---
Others - Amphibole	Trace	BaSO ₄	---
		ZnS	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin (xltln)	---
Mica	---	Kaolin (calc.)	---
Perlite	---	Smectite	Common
Talc (elong)	---	Ca (ppt)	---
Talc (platy)	---	Ca (xltln)	---
Quartz	---	Ca-Mg, particle	---
Vermiculite	Common	Ca-S (ppt)	---
Other- Feldspar	Trace	Ca-S (xltln)	---
Platy Mg-Si	Trace/Minor	Ca-Si (ppt)	---
Asbestos Minerals:		Ca-Si, particle	---
Amosite	---	Ca-Al-Si	---
Anthophyllite	---	Ca-Fe-Al-Si	---
Chrysotile	Common	Mg-Fe, particle	---
Crocidolite	---	Mg-S	---
Tremolite/Actinolite	---	Si (ppt)	---
		Si (xltln)	---
		Others	---

Comments: Smectite particles are consistent with montmorillonite. Platy Mg-Si particles are a probable contaminant of chrysotile.

Analyst: Randy Boltin

SAMPLE ID: MVA5394-N0450(A) VERMICULITE

POSSIBLE IDENTIFICATION

CU KA KB LA
 SI KA
 MG KA
 K KA KB OR IN LA
 FE KA KB
 AL KA
 TI KA OR BA LA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.947	268	CU LA
2	1.252	3764	MG KA
3	1.487	1191	AL KA
4	1.745	8740	SI KA
5	3.317	2069	K KA
6	3.640	285	K KB
7	4.523	282	TI KA
8	6.391	1905	FE KA
9	7.046	264	FE KB
10	8.028	11435	CU KA
11	8.893	1500	CU KB

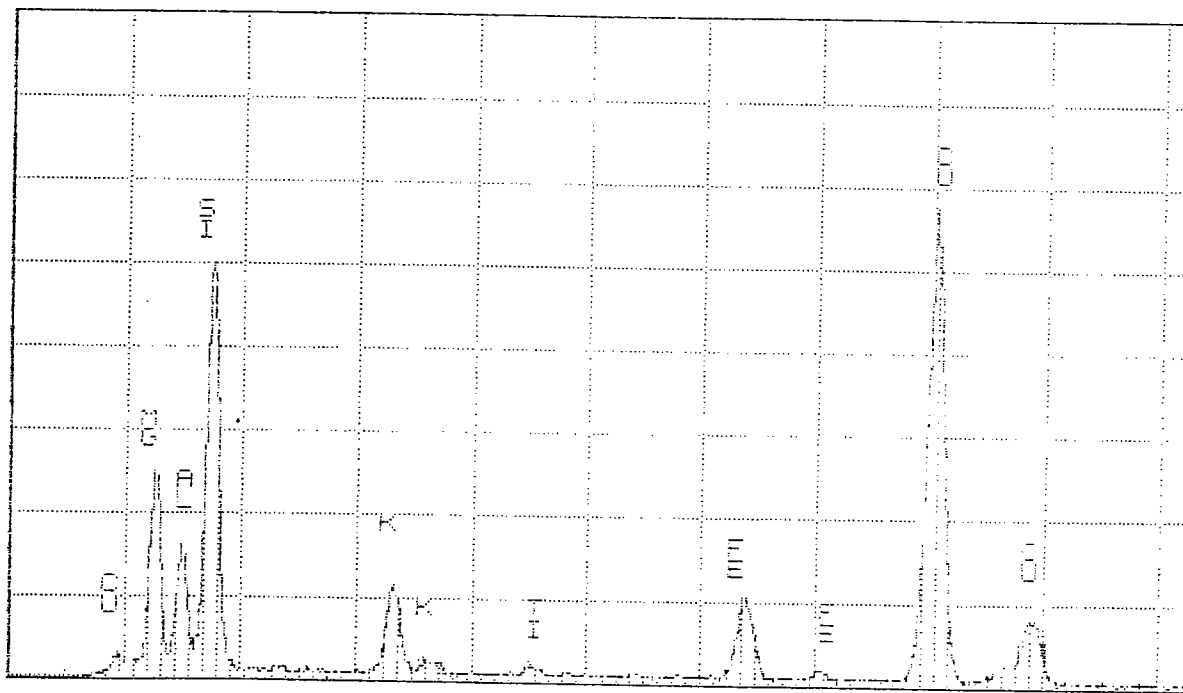
WAB
3/12/03

MVA INC.

WED 12-MAR-03 10:29

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.020



0.000

VFS = 1024 10.240

45

MVA5394-N0450(A) VERMICULITE

AEM spectrum of vermiculite.
 MVA5394-N0450(A)

- CESSIBLE IDENTIFICATION

SI KA

41 KA

FE KA

90-115

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.985	406	CU LA
2	1.287	97	MS KA
3	1.460	1697	AL KA
4	1.745	5087	E1 KA
5	6.080	269	FE KA
6	6.090	16198	CU KA
7	6.090	2261	CU KB

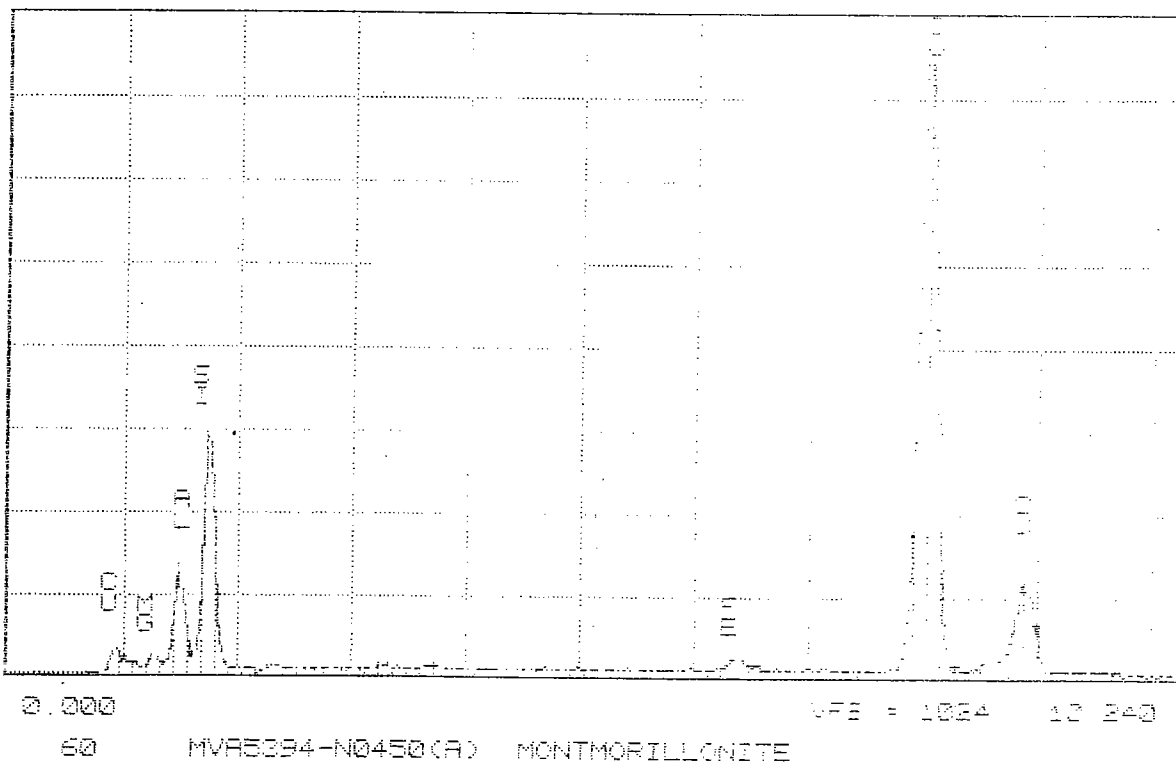
WMB
3/12/03

MVA INC.

[illegible]

Cursor: 0.000keV = 0

— 50 —



AEM spectrum of montmorillonite.
MVA5394-N0450(A)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(A) CHRYSOTILE

POSSIBLE IDENTIFICATION

CU KA KB LA

SI KA

MG KA

FE KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.934	368	CU LA
2	1.254	5517	MG KA
3	1.741	6404	SI KA
4	6.398	357	FE KA
5	8.026	19097	CU KA
6	8.829	1890	CU KB

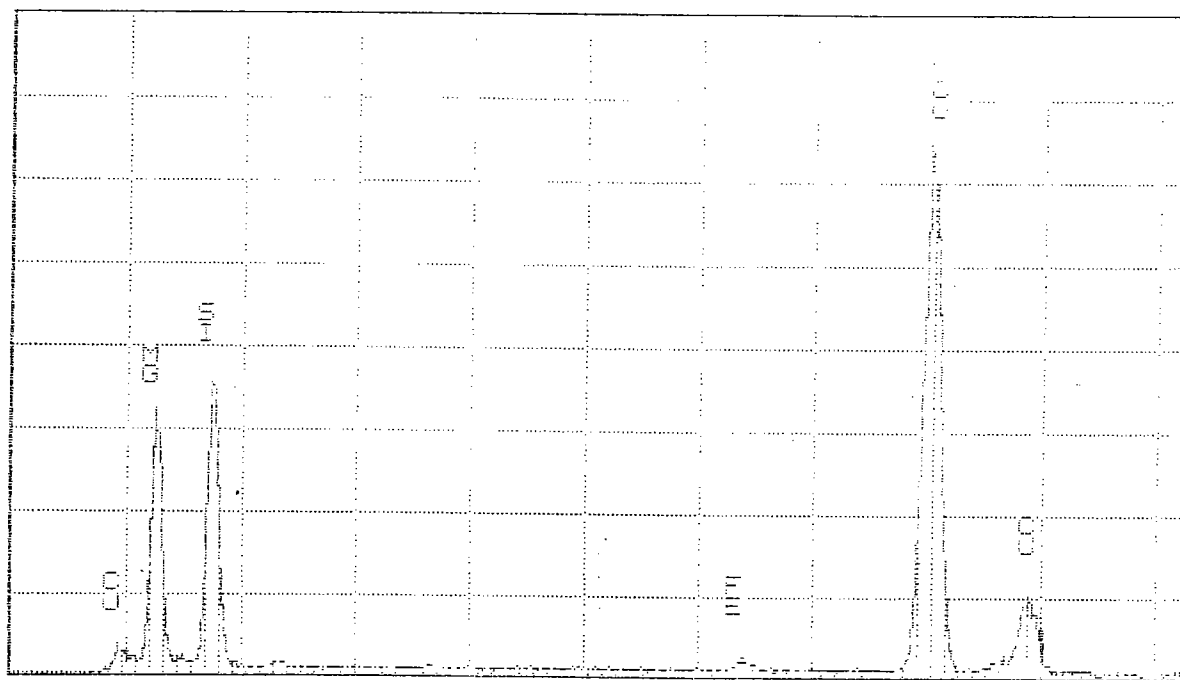
WAG
7/12/03

MVR INC.

AEC 13-MAR-03 13:13

Cursor: 0.000keV = 0

ROI 110 0.000: 0.000



0.000

VFE = 1024 10.240

50

MVA5394-N0450(A) CHRYSOTILE

AEM spectrum of chrysotile.
MVA5394-N0450(A)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(A) PLATY MG-SI PARTICLE

POSSIBLE IDENTIFICATION

CU KA KB LA

SI KA

MG KA

FE KA

S -KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.929	234	CU LA
2	1.254	5112	MG KA
3	1.741	5629	SI KA
4	2.295	173	S KA
5	6.355	578	FE KA
6	8.026	9991	CU KA
7	8.888	1285	CU KB

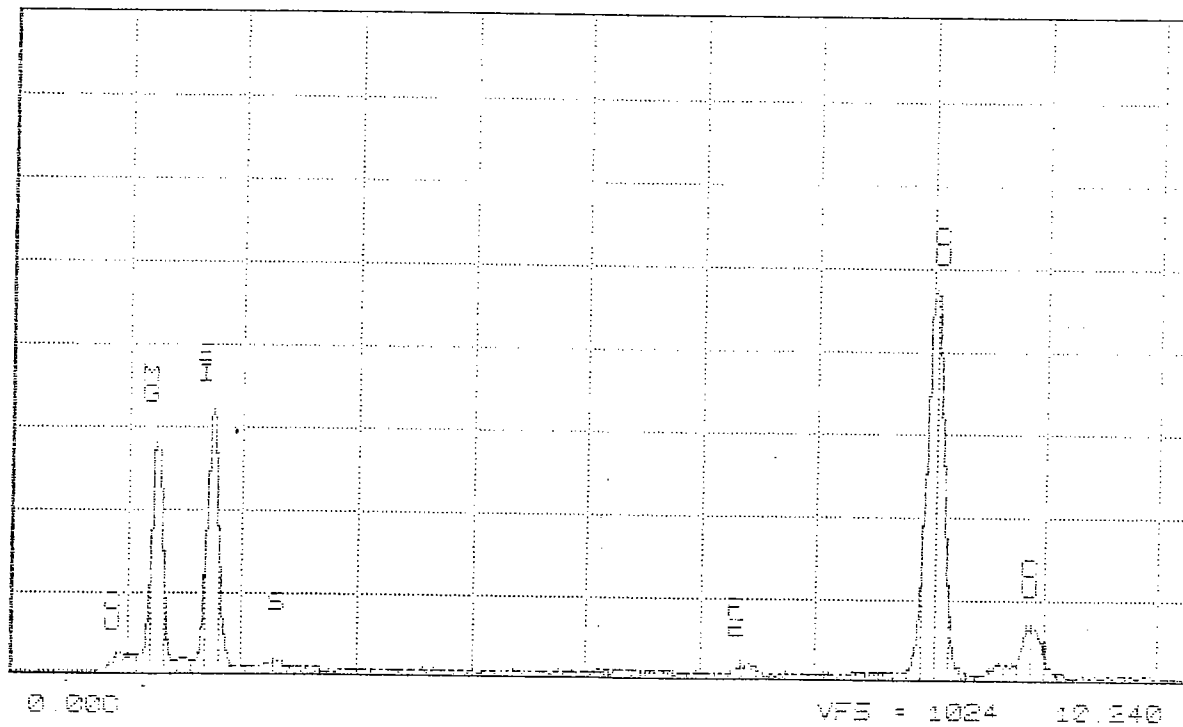
WKG
3/12/03

MVA INC.

WED 12-MAR-03 13:23

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



0.000

VFS = 1024 10.240

45

MVA5394-N0450(A) PLATY MG-SI PARTICLE

AEM spectrum of a platy Mg-Si particle.
MVA5394-N0450(A)

SAMPLE ID:MVA5394-N0450(A) AMPHIBOLE FIBER

POSSIBLE IDENTIFICATION

CU KA KB
 SI KA
 MG KA
 CA KA KB
 FE KA
 K KA OR IN LA?
 NA KA OR ZN KA LA
 ZN KA LA? OR OS LA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.001	393	NA KA OR ZN LA?
2	1.258	2593	MG KA
3	1.744	8541	SI KA
4	3.311	427	K KA OR IN LA?
5	3.687	1347	CA KA
6	4.022	185	CA KB
7	6.394	885	FE KA
8	8.028	10062	CU KA
9	8.537	103	ZN KA
10	8.885	1415	CU KB

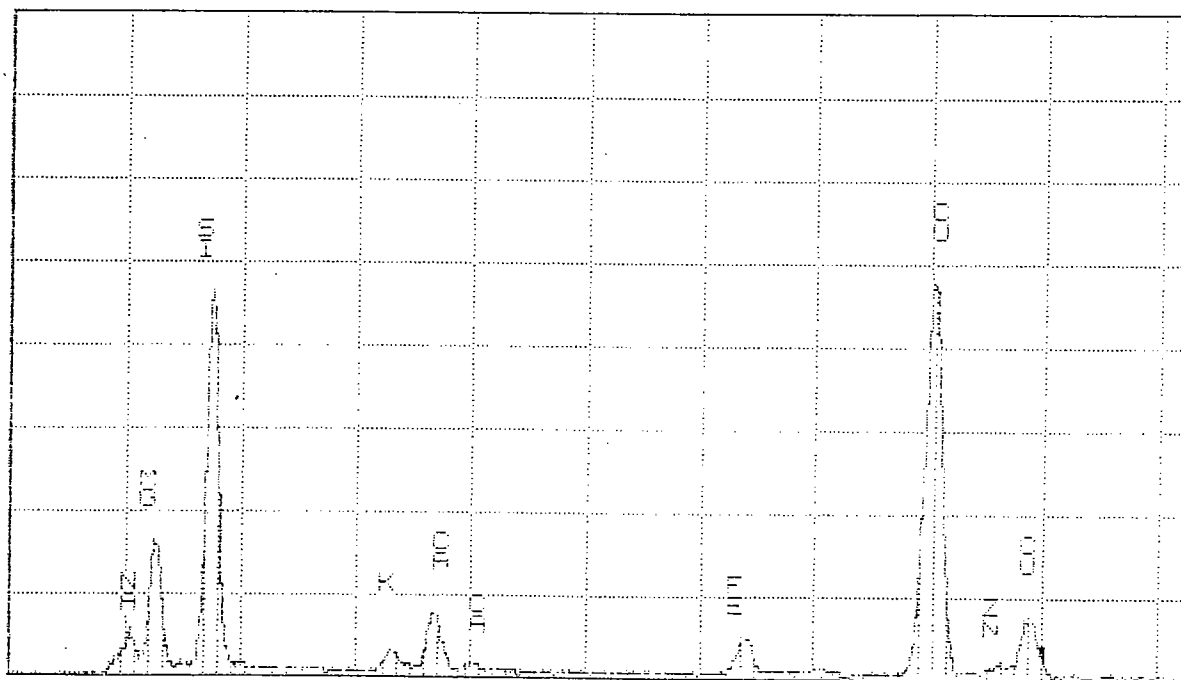
WKB
3/12/03

MVA INC.

WED 12-MAR-03 13:25

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



0.000

VFS = 1024 10 240

45

MVA5394-N0450(A) AMPHIBOLE FIBER

AEM spectrum of an amphibole fiber.
 MVA5394-N0450(A)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(A) ALKALI FELDSPAR

POSSIBLE IDENTIFICATION

SI KA
 CU KA KB
 K KA KB OR IN LA
 AL KA
 NA KA OR ZN KA LA
 ZN KA LA? OR RE LA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.028	722	NA KA OR ZN LA?
2	1.476	4284	AL KA
3	1.745	19824	SI KA
4	3.317	4946	K KA
5	3.620	377	K KB
6	8.080	8529	CU KA
7	8.590	270	ZN KA
8	8.898	1106	CL KB

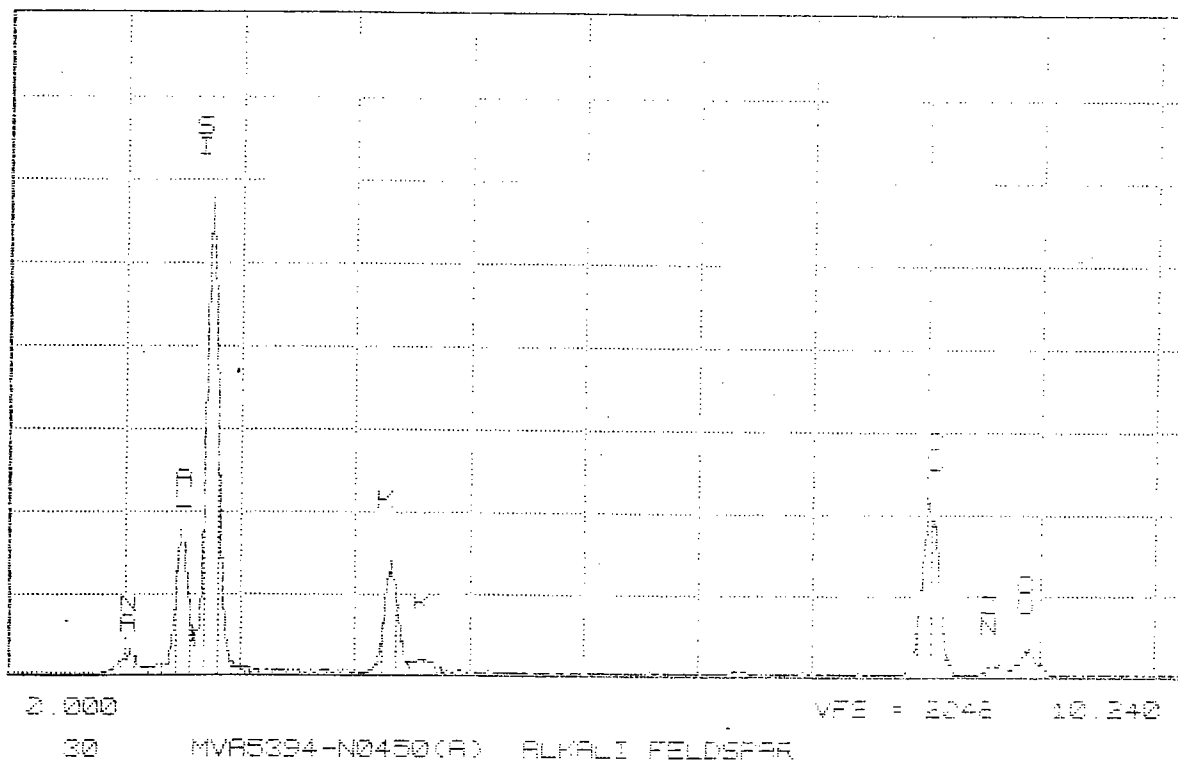
WRB
 3/12/09

MVA INC.

WED 12-MAR-03 10:32

Cursor: 0.000kev = 0

FOI (1) 0.000: 0.000



AEM spectrum of alkali feldspar.
 MVA5394-N0450(A)

MVA, Inc.

Acid Soluble Weight Percent Determination

Date: 3/12/03

MVA#: 5394

Sample I.D.#: N0450(A)

Initial Weights

1.	Vial w/lid	4.76995
2.	Vial + Sample	4.91057
3.	Sample Weight (S2-S1)	0.14062
4.	Filter (in container)	10.06608

Weights Following Acid Treatment

5.	Filter + Sample	10.21128
6.	Insoluble Residue (S5-S4)	0.14520
7.	Soluble Fraction (S3-S6)	---

Calculation

8.	% Soluble (S7/S3) x 100%	*
----	--------------------------	---

Comments: *No weight loss detected.

Analyst: William L. Turner, Jr.

MVA, Inc.
Data Interpretation

Sample ID: MVA5394-N0450(B), -N0452(B)
Project: State of California
Location: Sierra South Region Headquarters
Type: Fireproofing
Construction Date: Not Provided
Product Formula Matched: "Zonolite Finish Coat"
Manufacturer: W.R. Grace & Company

Constituent Identified	Estimated Weight Percent (Avg)*
Chrysotile	~16%
Vermiculite + Montmorillonite + TiO ₂	~84%

Comments:

*Estimated weight percent based on light microscopy in conjunction with acid soluble test result.

MVA, Inc.**PLM Constituent Analysis****Date:** 3/9/03**MVA #:** 5394**Location:** Sierra South Region Headquarters,
Automotive Repair Shop, 2nd Floor,
NW Corner**Sample I.D. #:** N0450(B) **Client Sample I.D. #:** SSRH-030303-01**Examination using the stereomicroscope:** Layered sample: layer (B) is an off-white flaky material with fibers

<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:	*	Fillers:	
Cotton	---	Binders:		Diatoms	---
Fiberglass		Kaolinite (*)	*	Iron Chromite	---
Filament	---	Montmorillonite (*)	*	Iron Oxide	---
Wool	---	Gypsum	---	Limestone	---
Mineral Wool	---	Anhydrite	---	Magnetite	---
Hair	---	Portland Cement	---	Mica	---
Paper/Wood		Lime (hydrated)	---	Perlite	---
Chem. Proc.	---	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	---	Pumice	---
Synthetic	---	Starch (-)	---	Quartz	---
				Talc	---
				Vermiculite	~85

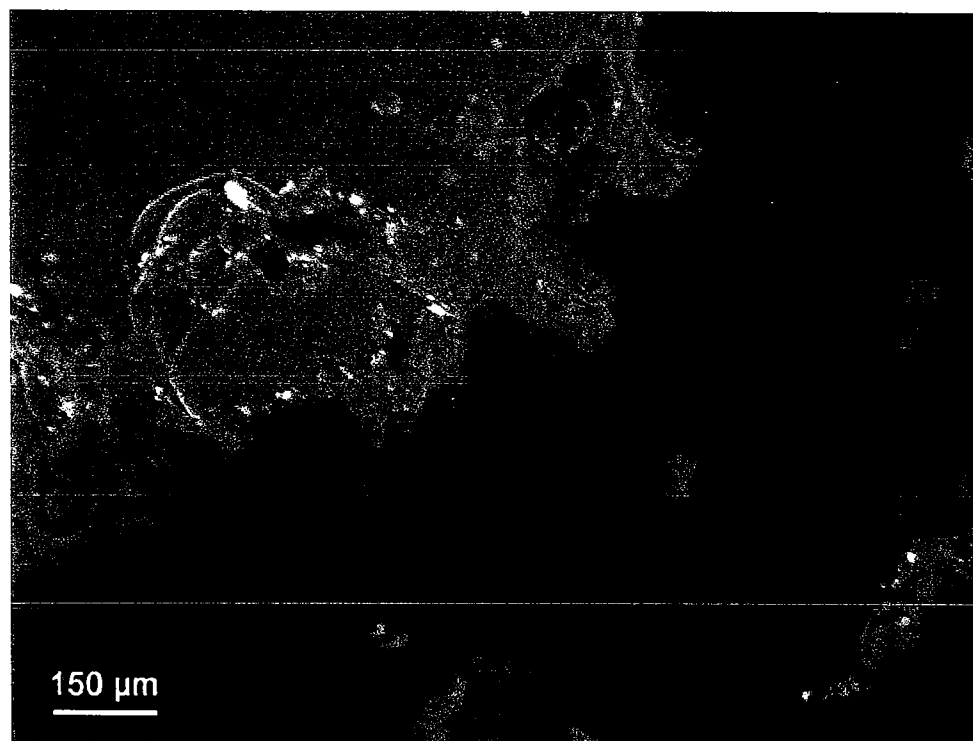
Asbestos Minerals

Chrysotile	~15	Anthophyllite	---	Tremolite/	
Amosite	---	Crocidolite	---	Actinolite	---

Comments: Only layer (B) is considered in this analysis. *Pigment + possible kaolinite (indicated by microchemical testing) are common to minor and are included in the vermiculite percentage. Montmorillonite may be present but could not be confirmed.**Analyst:** Randy Boltin



Photomicrograph of MVA5394-N0450(B).



PLM photomicrograph of MVA5394-N0450(B).

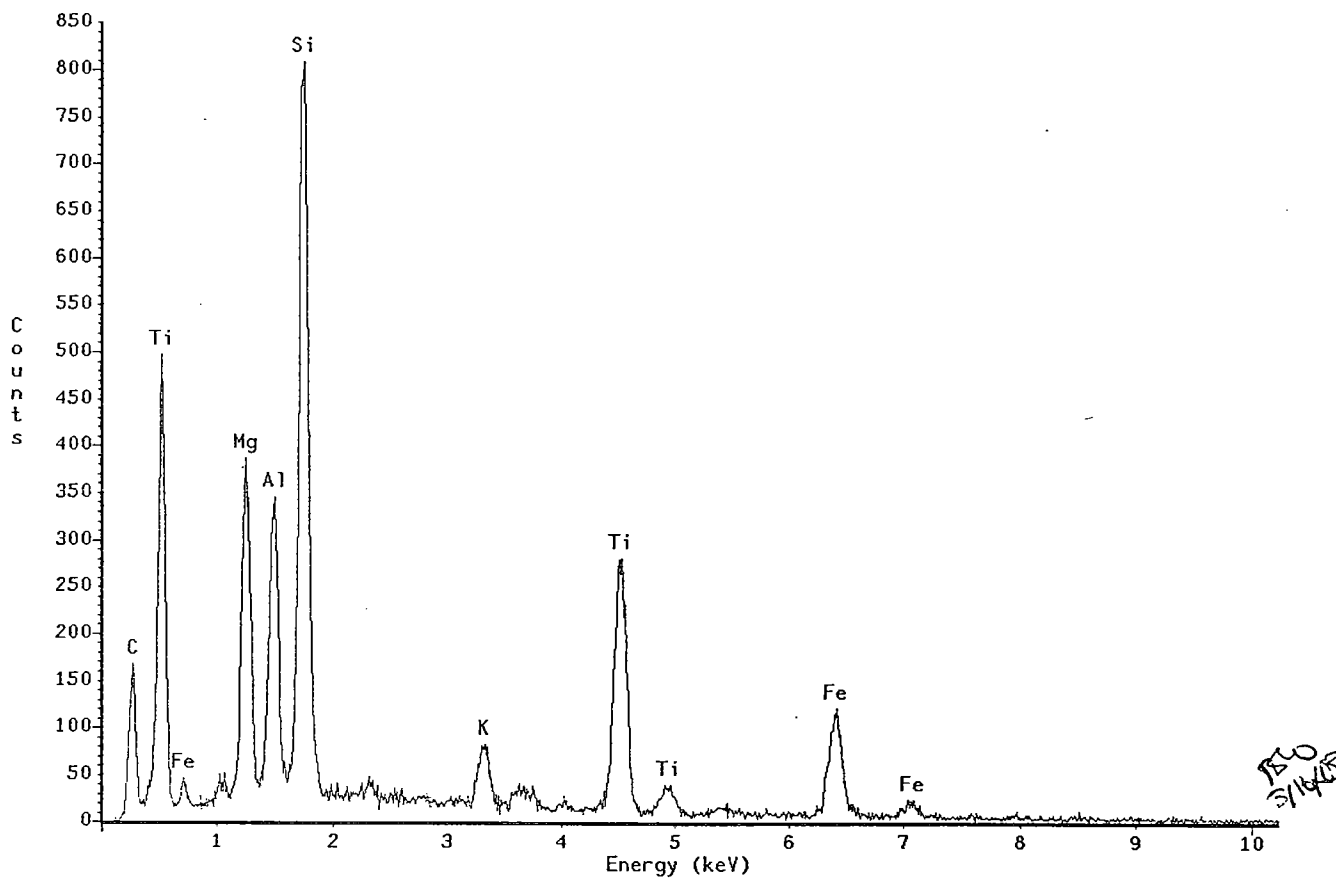
MVA, Inc.**SEM Constituent Analysis****Date:** 3/16/03**MVA #:** 5394

*Particles identified are consistent in morphology and elemental composition with known references.

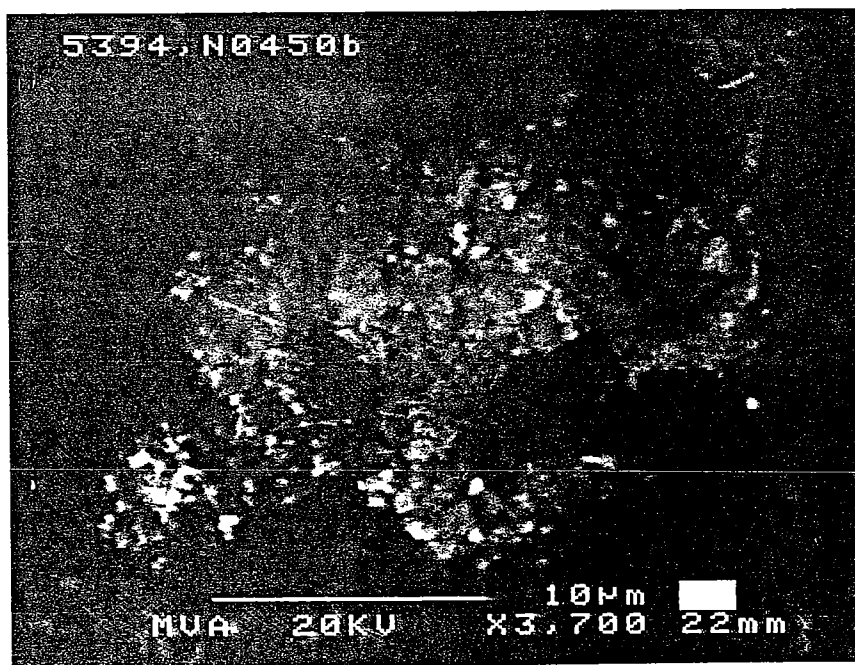
Sample I.D. #: N0450(B)

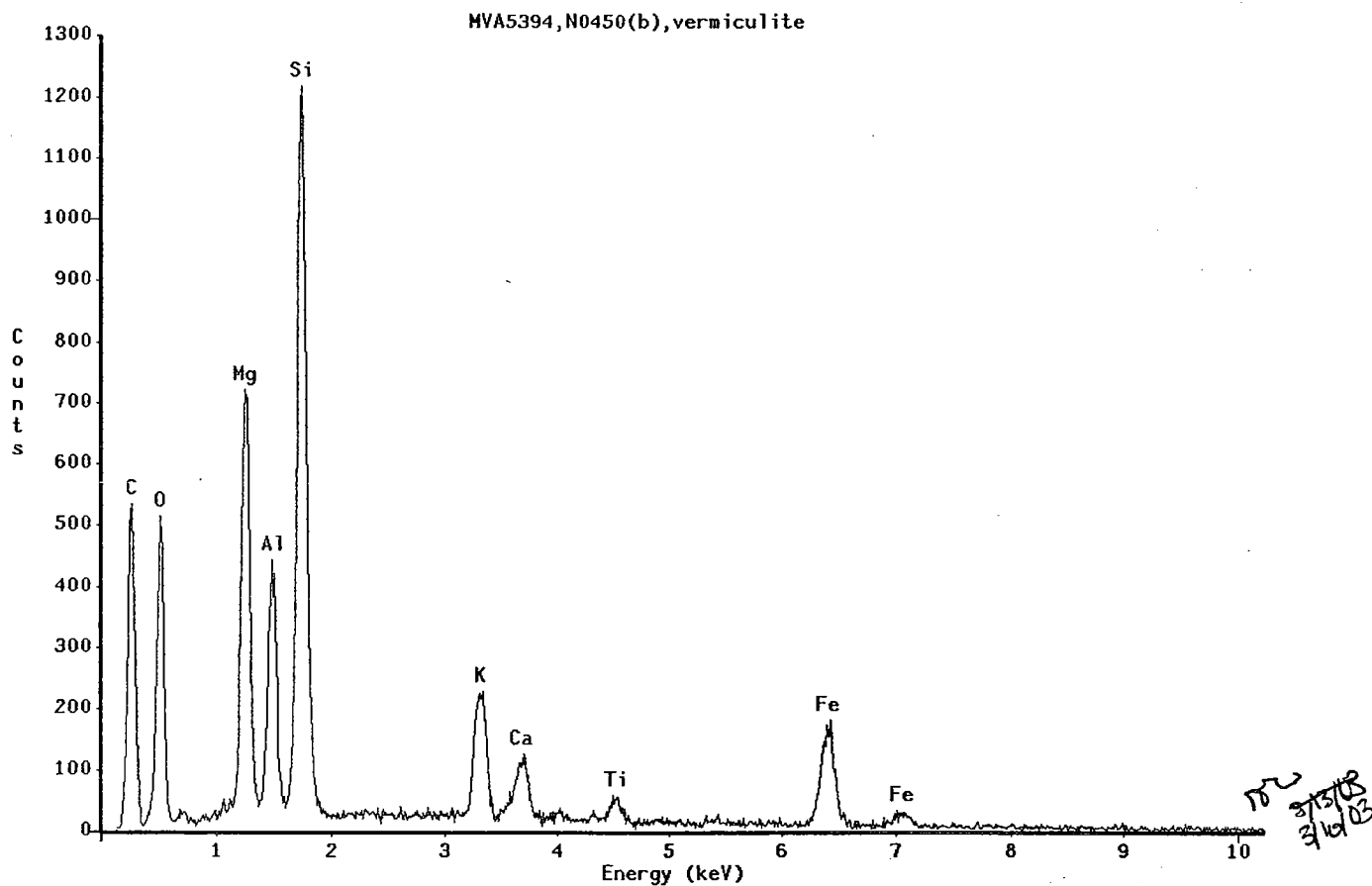
<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass	---	Titanium	Common
Mineral Wool	---	Barium	---
Other	---	Zinc	---
		Other	---
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin	---
Mica	---	Montmorillonite	Present
Perlite	---	Other	---
Talc (elong)	---	Ca	---
Talc (platy)	---	Ca-Mg	---
Si	---	Ca-S	---
Vermiculite	Common	Ca-Si	---
Other	---	Ca-Al-Si	---
Asbestos Minerals:		Ca-Fe-Al-Si	---
Amosite	---	Mg-Fe	---
Anthophyllite	---	Al-Si	---
Chrysotile	Common	Others	---
Crocidolite	---		
Tremolite/Actinolite	---		

Comments: Ti pigment present, associated with chromium.**Microscopist:** Tim B. Vander Wood

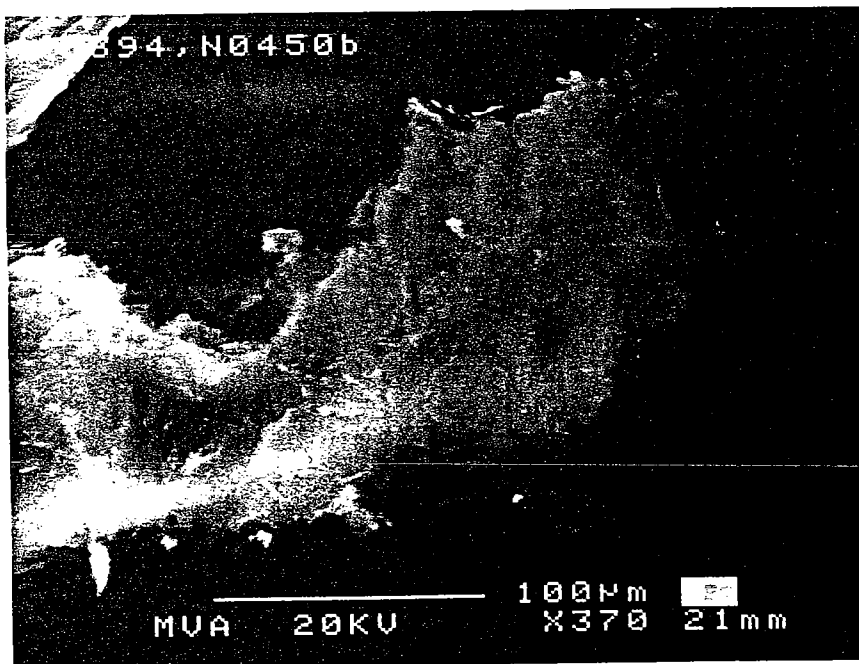


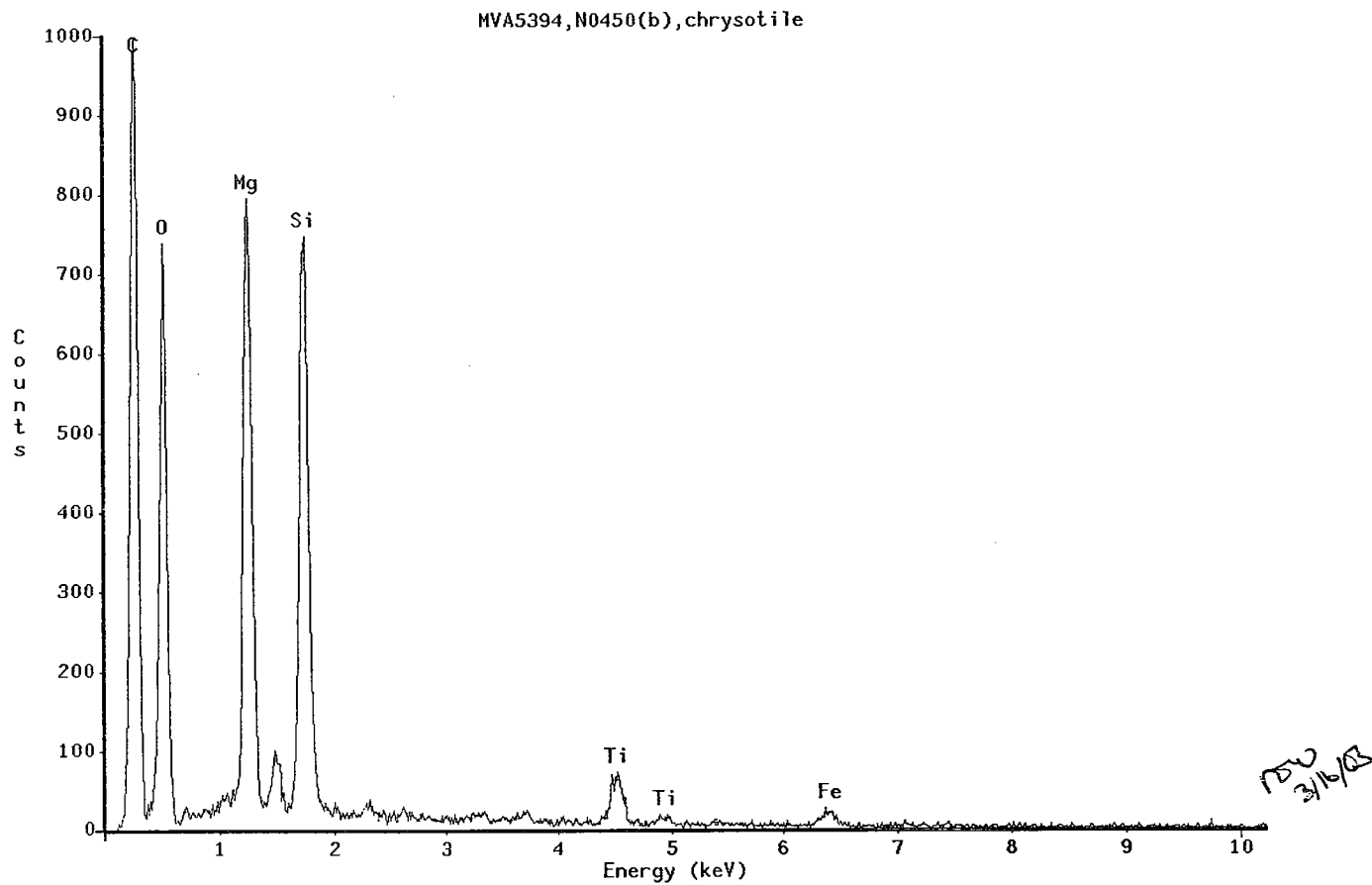
EDS spectrum (above) and SEM micrograph (below) of TiO_2 and vermiculite.
MVA5394-N0450(B)



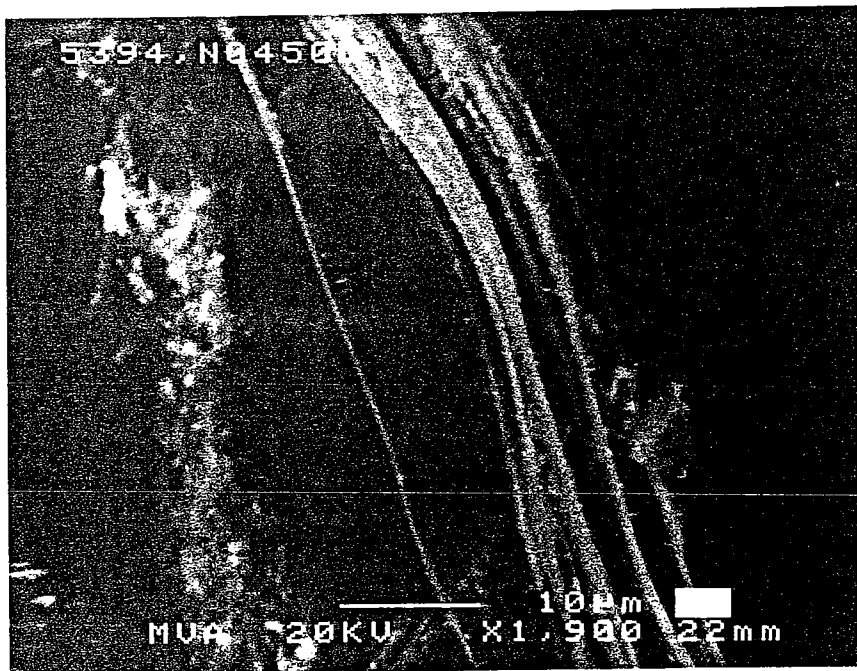


EDS spectrum (above) and SEM micrograph (below) of vermiculite.
MVA5394-N0450(B)





EDS spectrum (above) and SEM micrograph (below) of chrysotile.
MVA5394-N0450(B)



MVA, Inc.**AEM Constituent Analysis****Date:** 3/12/03**MVA #:** 5394**Sample I.D. #:** N0450(B)

<u>CONSTITUENT</u>	<u>PRESENT</u>	<u>CONSTITUENT</u>	<u>PRESENT</u>
Fibers:		Pigments:	
Glass fibers	---	TiO ₂	Common
Others	---	BaSO ₄	---
		ZnS	---
		Other-Cr Particles	Trace
Fillers:		Binders:	
Diatoms	---	Clay	
Fe Particle	---	Kaolin (xltln)	---
Mica	---	Kaolin (calc.)	---
Perlite	---	Smectite	Common
Talc (elong)	---	Ca (ppt)	---
Talc (platy)	---	Ca (xltln)	---
Quartz	Trace	Ca-Mg, particle	---
Vermiculite	Common	Ca-S (ppt)	---
Other	---	Ca-S (xltln)	---
Asbestos Minerals:		Ca-Si (ppt)	---
Amosite	---	Ca-Si, particle	---
Anthophyllite	---	Ca-Al-Si	---
Chrysotile	Common	Ca-Fe-Al-Si	---
Crocidolite	---	Mg-Fe, particle	---
Tremolite/Actinolite	---	Mg-S	---
		Si (ppt)	---
		Si (xltln)	---
		Others	---

Comments: Smectite properties are consistent with montmorillonite.**Analyst:** Randy Boltin

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(B) VERMICULITE

POSSIBLE IDENTIFICATION

CU KA KB LA

SI KA

MG KA

K KA KB OR IN LA

FE KA

AL KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.945	371	CU LA
2	1.250	2738	MG KA
3	1.487	944	AL KA
4	1.745	5602	SI KA
5	3.317	1415	K KA
6	3.625	169	K KB
7	6.391	1155	FE KA
8	8.025	15208	CU KA
9	8.891	2001	CU KB

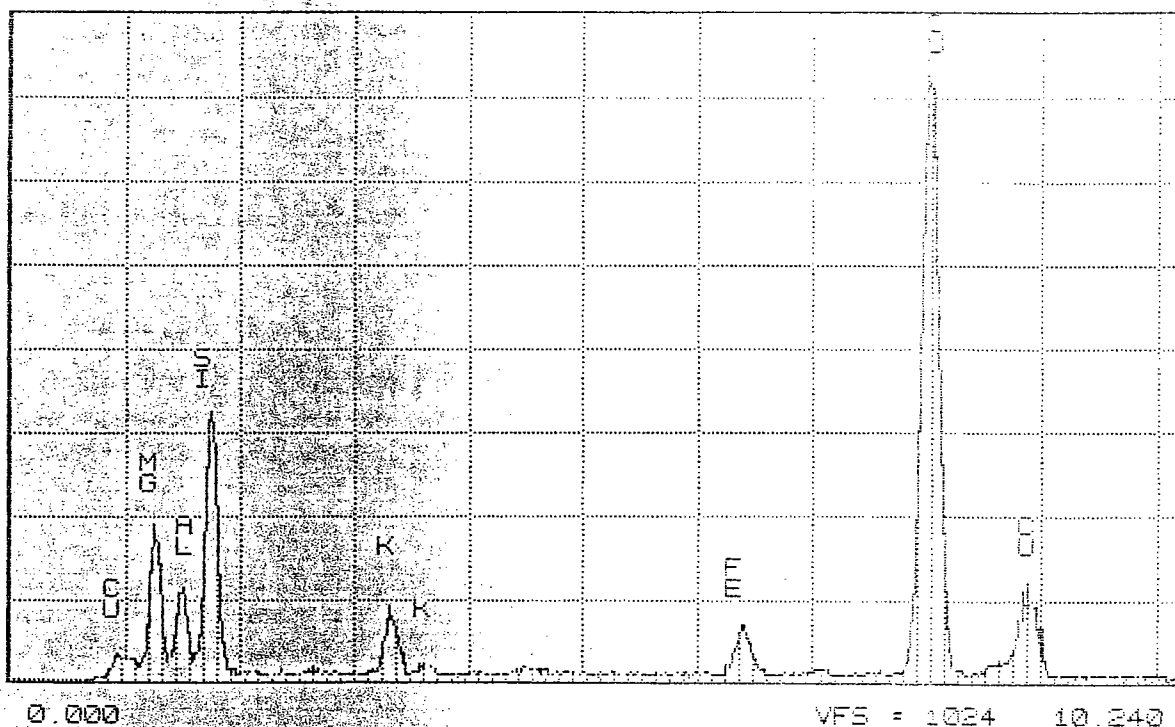
WAB
3/12/03

MVA INC.

WED 12-MAR-03 13:55

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



61 MVA5394-N0450(B) VERMICULITE

AEM spectrum of vermiculite.
MVA5394-N0450(B)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(B) MONTMORILLONITE

POSSIBLE IDENTIFICATION

CU KA KB LA
 SI KA
 AL KA
 FE KA
 K KA OR IN LA?
 MG KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.947	383	CU LA
2	1.233	137	MG KA
3	1.478	2060	AL KA
4	1.746	6682	SI KA
5	3.309	139	K KA OR IN LA?
6	6.385	460	FE KA
7	8.028	11909	CU KA
8	8.884	1737	CU KB

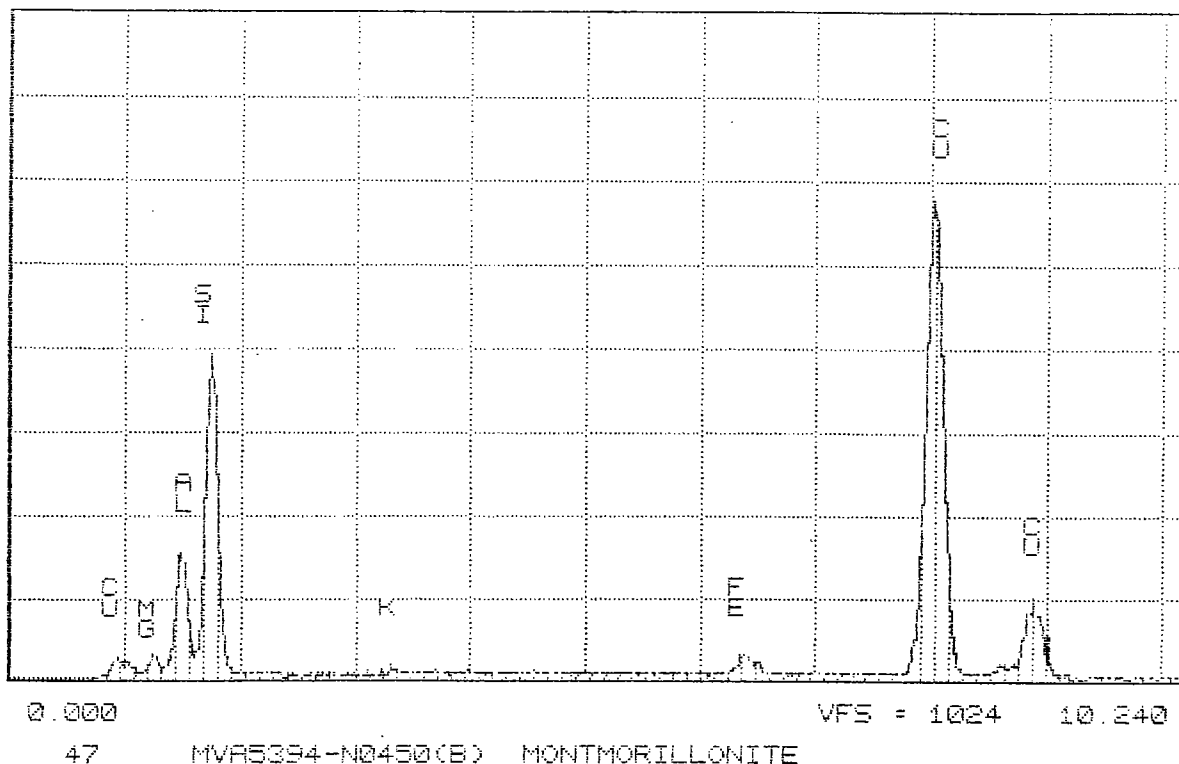
WAB
 3/12/03

MVA INC

WED 12-MAR-03 13:58

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



AEM spectrum of montmorillonite.
 MVA5394-N0450(B)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(B) TIO2

POSSIBLE IDENTIFICATION

TI KA KB OR BA LA

CU KA KB LA

SI KA

AL KA

CA KA

ZN KA LA? OR RE LA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.967	344	CU LA OR ZN LA?
2	1.479	471	AL KA
3	1.750	1586	SI KA
4	3.690	405	CA KA
5	4.507	40491	TI KA
6	4.930	5123	TI KB
7	8.028	11373	CU KA
8	8.589	377	ZN KA
9	8.891	1503	CU KB

WMB
3/12/03

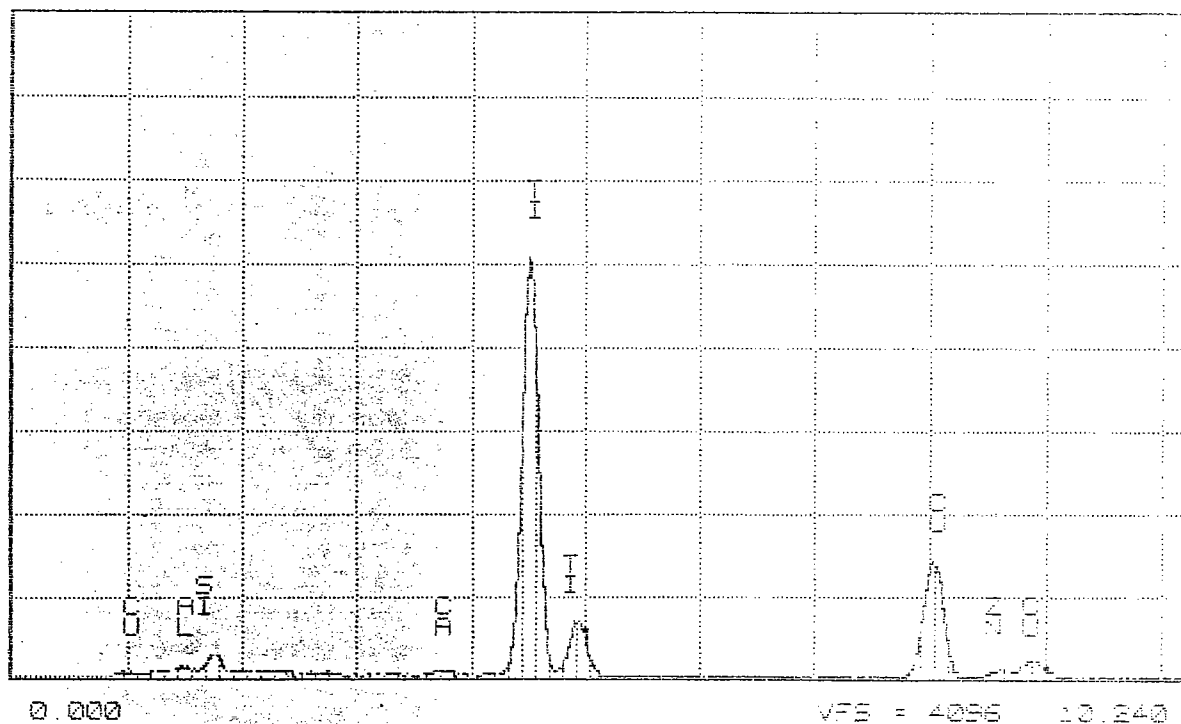
MVA INC.

WED 12-MAR-03 11:51

Cursor: 0.000keV = 0

ROI

(1) 0.000: 0.000



MVA5394-N0450(B) TIO2

AEM spectrum of TiO₂.
MVA5394-N0450(B)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(B) CHRYSOTILE

POSSIBLE IDENTIFICATION

CU KA KB LA
 SI KA
 MG KA
 FE KA
 CA KA OR TE LA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	0.965	175	CU LA
2	1.254	4499	MG KA
3	1.739	5750	SI KA
4	3.716	178	CA KA
5	6.398	229	FE KA
6	8.029	6398	CU KA
7	8.881	840	CU KB

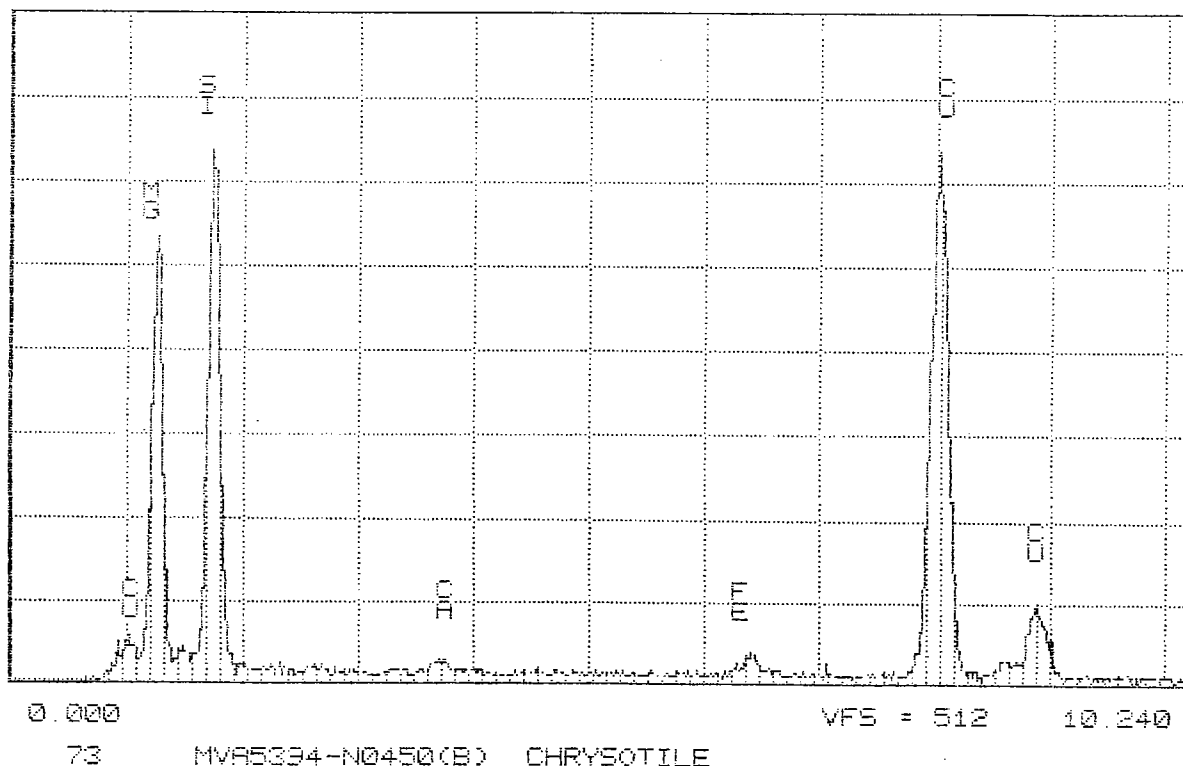
WRG
 3/12/03

MVR INC.

WED 12-MAR-03 14:22

Cursor: 0.000keV = 0

ROI (1) 0.000: 2.000



AEM spectrum of chrysotile.
 MVA5394-N0450(B)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(B) CR PARTICLE

POSSIBLE IDENTIFICATION

CR KA KB OR PM LA LB
CU KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	5.407	5366	CR KA
2	5.945	675	CR KB
3	8.028	734	CU KA

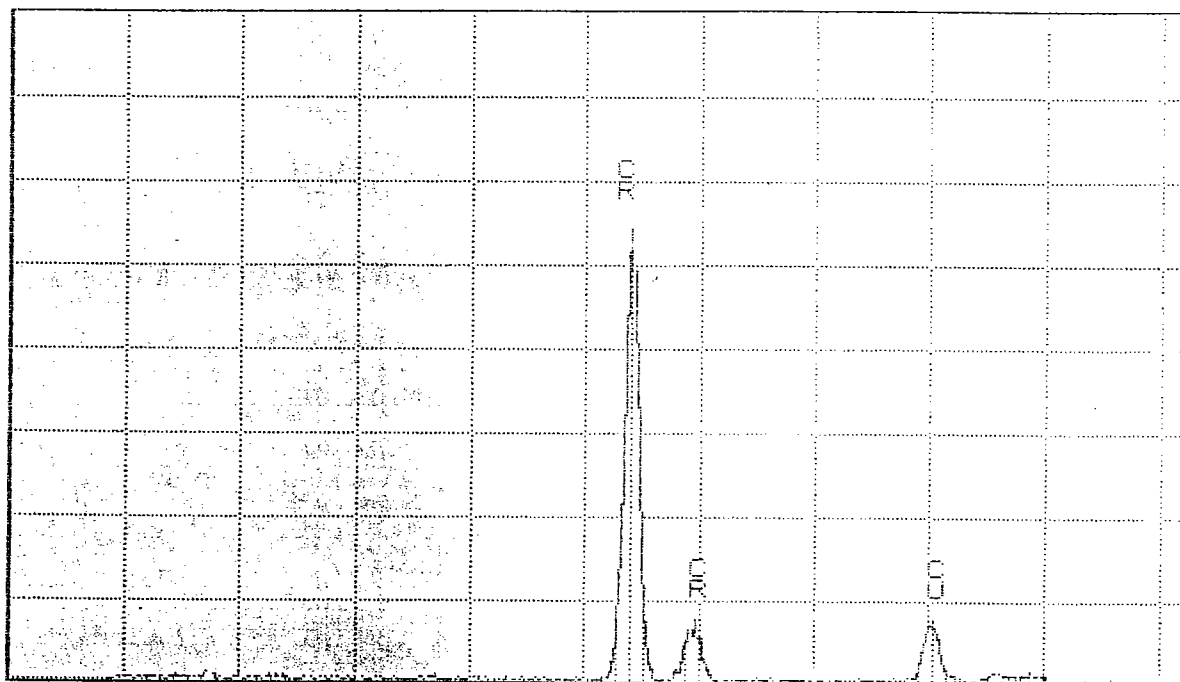
W129
3/12/07

MVA INC.

WED 12-MAR-03 14:04

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



0.000

VFS = 512

10 240

60

MVA5394-N0450(B) CR PARTICLE

AEM spectrum of a Cr particle.
MVA5394-N0450(B)

QUALITATIVE ELEMENT IDENTIFICATION

SAMPLE ID: MVA5394-N0450(B) QUARTZ

POSSIBLE IDENTIFICATION

SI KA

CU KA

PEAK LISTING

	ENERGY	AREA	EL. AND LINE
1	1.740	3958	SI KA
2	8.027	375	CU KA

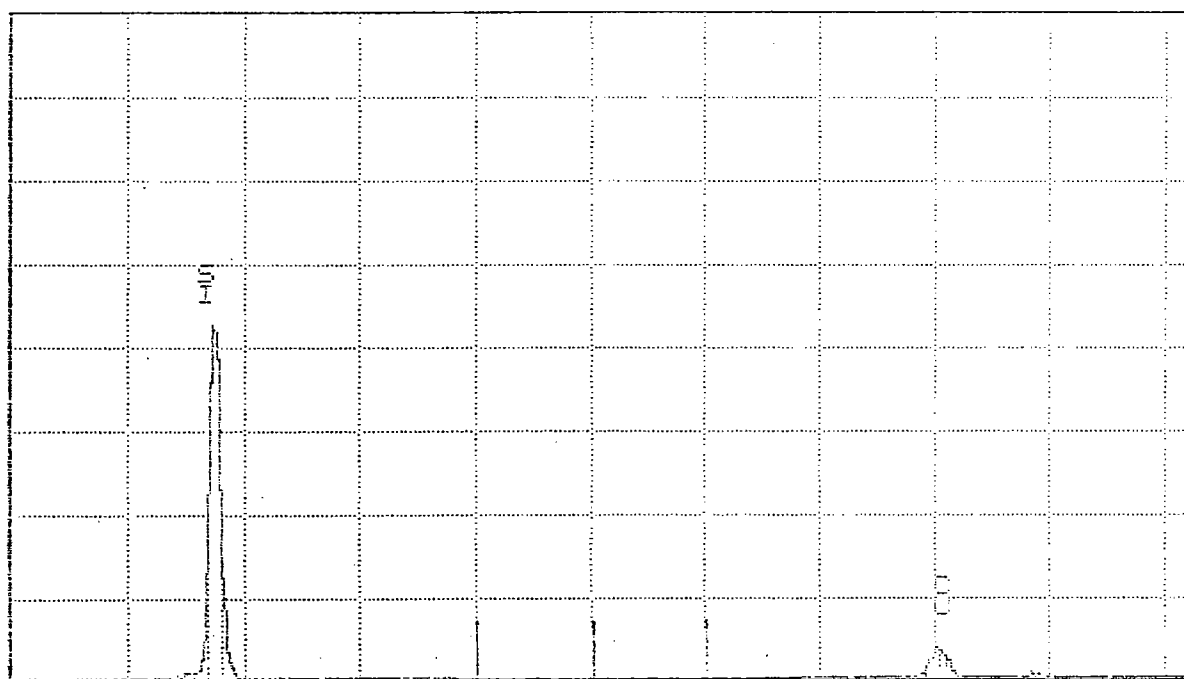
*WRB
3/12/03*

MVA INC.

WED 12-MAR-03 14:14

Cursor: 0.000keV = 0

ROI (1) 0.000: 0.000



0.000

VFS = 512

10 340

SI

MVA5394-N0450(B) QUARTZ

AEM spectrum of quartz.
MVA5394-N0450(B)

MVA, Inc.

Acid Soluble Weight Percent Determination

Date: 3/12/03

MVA#: 5394

Sample I.D.#: N0450(B)

Initial Weights

1.	Vial w/lid	4.84576
2.	Vial + Sample	5.04077
3.	Sample Weight (S2-S1)	0.19501
4.	Filter (in container)	10.03977

Weights Following Acid Treatment

5.	Filter + Sample	10.23380
6.	Insoluble Residue (S5-S4)	0.19403
7.	Soluble Fraction (S3-S6)	0.00098

Calculation

8.	% Soluble (S7/S3) x 100%	0.5%
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Comments:

Analyst: William L. Turner, Jr.